

Service Manual

PIONEER
The Art of Entertainment

● KEH-P9200RDS/EW



ORDER NO.
CRT1638

MULTI-CD/DSP CONTROL FM/MW/LW TUNER DECK AMPLIFIER

KEH-P9200RDS **EW**

NOTE:

- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- See the separate manual CX-631 (CRT1640) for the cassette mechanism description.
- The cassette mechanism employed in this model is one of [X-2L] mechanism series.

CONTENTS

1. DISASSEMBLY	2	8. SCHEMATIC CIRCUIT DIAGRAM	
2. ADJUSTMENT	3	(KEH-P820RDS/EW)	37
3. ELECTRICAL PARTS LIST	16	9. CIRCUIT DIAGRAM AND PATTERN	40
4. BLOCK DIAGRAM	27	10. EXPLODED VIEW	63
5. CONNECTION DIAGRAM	29	11. PACKING METHOD	72
6. SCHEMATIC CIRCUIT DIAGRAM		12. SPECIFICATIONS	75
(KEH-P9200RDS/EW, X1BEW)	31	13. OPERATIONS AND CONNECTION	76
7. SCHEMATIC CIRCUIT DIAGRAM			
(KEH-P8200RDS/EW, X1BEW)	34		

PIONEER ELECTRONIC CORPORATION

4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada

PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY.LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL:[03]580-9911

© **PIONEER ELECTRONIC CORPORATION 1995**

K-FFA. FEB. 1995 Printed in Japan

431

● Service Precautions

1. This device employs an inverter as the power supply for the EL. The inverter has an output voltage reach approximately 300 Vrms (AC), under no-load condition and about 160 Vrms (AC), with the EL connected. Utmost care should be used not to suffer from a possible electric shock, accordingly.

1. DISASSEMBLY**● Removing the Case(not shown)**

1. Insert and turn a flat screwdriver to remove the case.
2. Raise the case to remove.

● Removing the Cassette Mechanism Module (not shown)

1. Remove the four screws.
2. Disconnect the connector.
3. Remove the cassette mechanism module.

● Removing the Detach Grille Assy(not shown)

1. Press the detach button.
2. Press the button and then remove the detach grille Assy.

● Removing the Panel Assy

1. Remove the two screws, and disconnect the two connectors.
2. Disengage the stoppers at four locations indicated by arrows.
3. Remove the panel Assy.

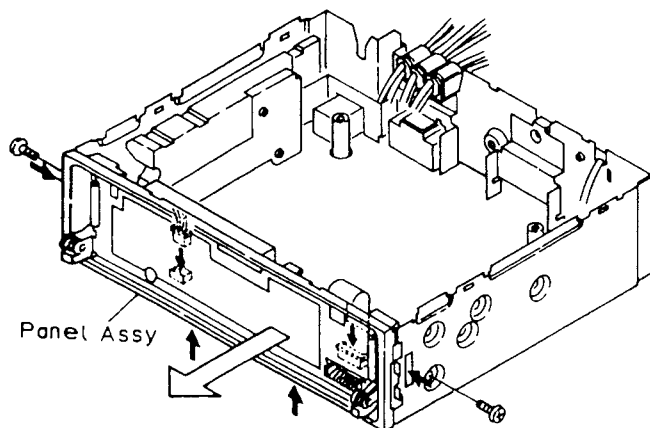


Fig.1

● Removing the Tuner Amp Unit

1. Remove the six screws A.
2. Remove the screw B and then remove the holder.
3. Unbend the tabs at three locations indicated by arrows until straight.
4. Raise up on tuner amp unit to remove it from chassis unit.

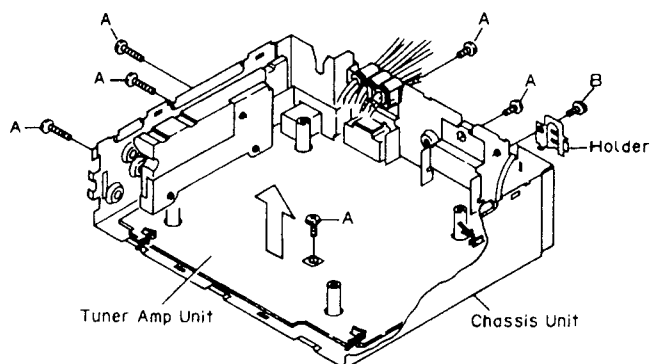


Fig.2

● Indicating An Error Number

If the CD should fail to operate in CD multi player or if an error has taken place during the operation and resulted in an error, the player will enter into the error mode. And the cause of such error is numerically indicated.

This is aimed at assisting an analysis or repair.

(1) Basic Means of Display

- With ERROR indicated in "MODE" on IP-BUS Display date, an error code is transmitted by the use of MIN and SEC. Identical date are transmitted with MIN and SEC.
- Examples of Display ERROR-XX

(2) Error Codes

Error Code	Classification	Description	Cause/Detail
10	ELECTRIC	Carriage home failure	Carriage doesn't move to or from the innermost position →Home switch failed and/or carriage immobile
11	ELECTRIC	Focus failure	Focus failed →Defects, disc upside-down, severe vibration
12	ELECTRIC	SETUP failure Subcode failure	Spindle failed to lock or subcode unreadable →Spindle defective, defect, severe vibration
14	ELECTRIC	Mirror failure	Unrecorded CD-R The disc is upside-down, defects, vibration
17	ELECTRIC	Set up failure	AGC protect failed →Defects, disc upside-down, severe vibration
30	ELECTRIC	Search time out	Failed to reach target address →Carriage/tracking defective and/or defects
A0	SYSTEM	Power failure	Power overvoltage or short circuit detected →Switching transistor defective and/or power abnormal
50	MECHANISM	An error upon ejection	MAG switch release time has time out Elevation time out when eject
60	MECHANISM	An error while putting in and out the tray	Tray in / out time has time out Tray is caught when put in
70	MECHANISM	An error upon elevation	Elevation time has time out
80	MECHANISM	An error with an empty magazine inserted	No disc is available

* Setup means a series of operations after focusing up to sound output.

● New Test Mode(aging operation and setup analysis)

The single CD player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disc number)

During the setup, the CD software operation status (internal RAM and C-point)is displayed.

(1) How to enter NEW TEST Mode

See the test mode flow chart Page 3.

(2) Relations of keys between TEST and NEW TEST Modes

Keys	Test Mode		New Test Mode	
	Regulator OFF	Regulator ON	PLAY in progress	Error Occurred, Protection Activated
BAND	Regulator ON	Regulator OFF	—	Time of occurrence / cause of error select
FF	—	FWD-Kick	TRACK UP / FF	—
REV	—	REV-Kick	TRACK DOWN / REV	—
7	—	Tracking close	RPT	—
8	—	Tracking open	RANDOM	—
9	—	Focus close	ITS	—
12	To New Test Mode	Focus Mode Select	PAUSE	—

Operations, such as EJECT, CD ON/OFF, etc. are performed normally

(3) Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause	Detail
40	ELECTRIC	PLAY	FOK=L 100ms	Put out of focus	Scratch, Stain, Vibration, Servo defect, etc...
41	ELECTRIC	PLAY	LOCK=L 150ms	Spindle unlock	
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Failed to read subcode	
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated	

(4) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving inwards	10-second time out, home switch failed
03	Carriage moving outwards	10-second time out, home switch failed
05	Carriage moving outwards	None
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closure (XSI=L)	Failure to close focus
10,14	Waiting for focus closure (FOK=H)	Failure to close focus
15,16,17	Focus closed, Tracking open	Focus disrupted
18	During focus AGC Subcode waiting	Focus disrupted
19	During tracking AGC	Disrupted focus
20	Waiting for MIRR, LOCK or subcode read Carriage closed, SPINDLE=ADAPTIVE	Focus disrupted, MIRR NG, failure to lock, failed to read subcode

(5) Example of Display.

- SET UP in progress

TNo.	Min	Sec
11	11	11

- Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the normal mode.

- Protection/Error upon occurrence
(a) Error number indicated

ERROR-xx

Select the display with the
BAND key.

- (b) Track number and
absolute time indicated

TNo.	Min	Sec
10	40	05

2.2 TUNER/AUDIO ADJUSTMENT

● Connection Diagram

NOTE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

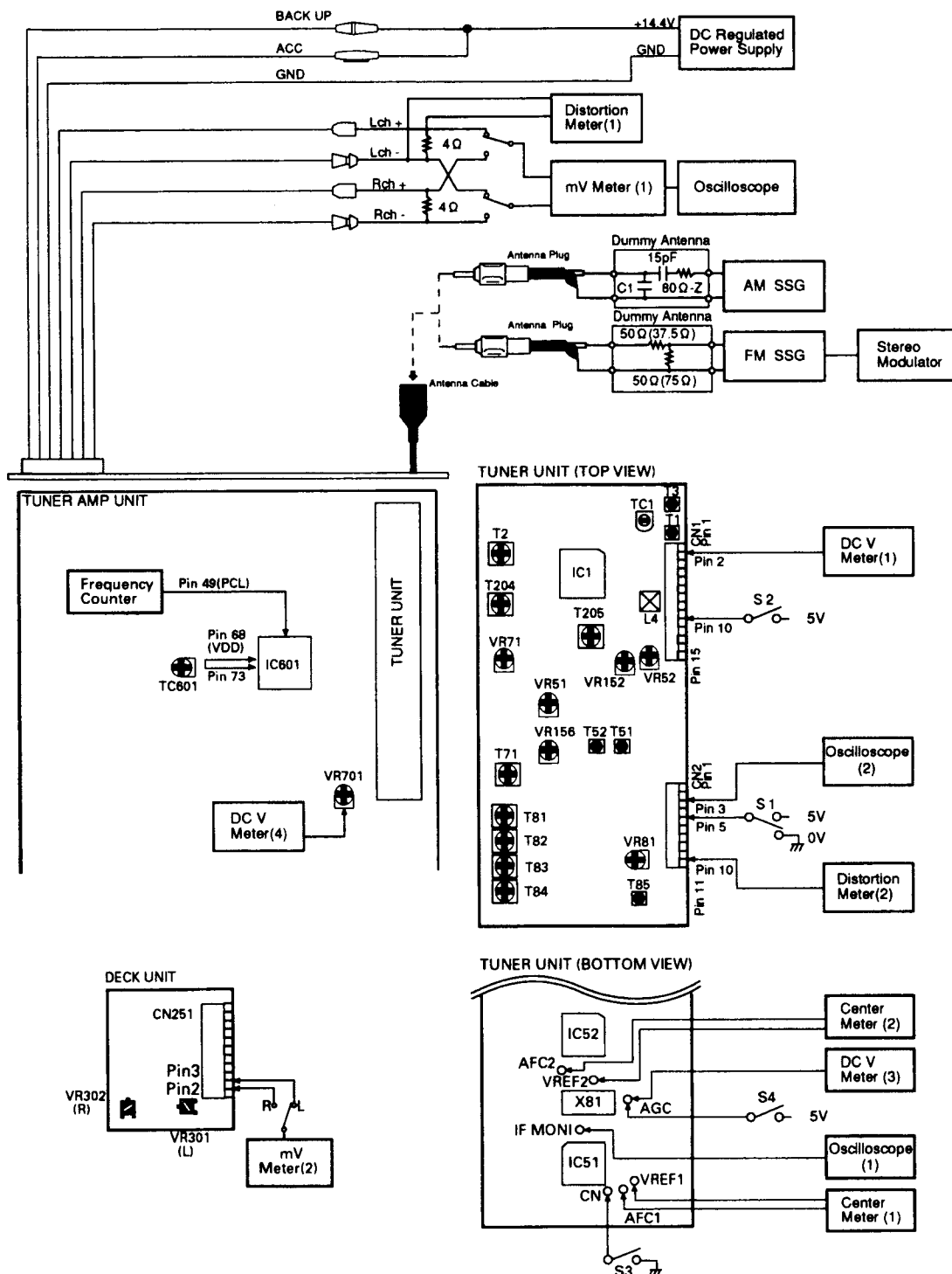


Fig.3

MW/LW ADJUSTMENT

	No.	AM SSG(400Hz,30%)		Displayed Frequency(kHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(kHz)	Level(dBμV)			
IF	1	999	20	999	T204,T205	mV Meter(1) : Maximum

FM ADJUSTMENT(KEH-P9200RDS/EW, X1BEW)

Modulation M: MONO MOD., 400Hz 100%(75kHz Dev.)

S: STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE: Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

the circuits to stabilize.						
	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	108.0	L4	DC V Meter(1) : 6.5V±0.1V
IF	1	98.1 M	65	98.1	T85	Center Meter(1) : 0 (S1:0V)
	2	98.1 M	65	98.1	T51	Center Meter(2) : 0 (S1:0V)
	3	98.1 M	65	98.1	T52	Distortion Meter(2) : Minimum (S1:0V)
	4	Repeat No.2-3 alternately so that the center meter indicates the 0 output and distortion meter indicates the minimum output.				
ANT,RF	1	106.1 M	5-15	106.1	TC1	mV Meter(1) : Maximum (S1:0V)
	2	89.9 M	5-15	89.9	T1,T3	
	3	Repeat No.1-2 alternately so that the mv meter indicates the maximum output.				
IMAGE	1	129.3 M	70-90	107.9	TC1	mV Meter(1) : Minimum (S1:0V)
IFT	1	98.1 M	5-15	98.1	T2	mV Meter(1) : Maximum (S1:0V)
IHF	1	98.1 M	13	98.1	T71	mV Meter(1) : Maximum (S1:0V)
Max Sep	1	98.1 S	65	98.1	VR152	mV Meter(1) : Separation Maximum (S1:0V)
ST,THD	1	98.1 S	65	98.1	T71	mV Meter(1) : Minimum (S1:0V)
Max Sep	1	98.1 S	65	98.1	VR152	mV Meter(1) : Separation Maximum (S1:0V)
Dynas Filter	1	98.1 M	50	98.1	T83,T84	Oscilloscope(1) : Maximum (S1:5V) (S3:ON) (S4:5V)
	2	118.1 M	50	118.1	T81	
	3	78.1 M	50	78.1	T82	
IF Gain	1	98.1 M	14	98.1	VR71	DC V Meter(3) : 4V±0.1V S1:0V(Gnd),S2:0V(OFF), S3:0V(ON),S4:0V(OFF)
Soft Mute	1	98.1 M	65	98.1	.....	mV Meter(1) : A(0dB)(STEREO MODE)
	2	98.1 M	15	98.1	VR81	mV Meter(1) : A-3dB
ARC	1	98.1 S	40	98.1	VR52	mV Meter(1) : Separation 5dB±3dB (STEREO MODE)
SD	1	98.1 S	22	98.1	VR51	Oscilloscope(2) : Approx. 1V(S2:5V)

FM ADJUSTMENT(KEH-P8200RDS/EW, X1BEW, KEX-P820RDS/EW)

Modulation M:MONO MOD., 400Hz 100%(75kHz Dev.)

S :STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	108.0	L4	DC V Meter(1) : 6.5V±0.1V
IF	1	98.1 M	65	98.1	T51	Center Meter(2) : 0 (S1:0V)
	2	98.1 M	65	98.1	T52	Distortion Meter(1) : Minimum (S1:0V)
	3	Repeat No.1-2 alternately so that the center meter indicates the 0 output and distortion meter indicates the minimum output.				
ANT,RF	1	106.1 M	5-15	106.1	TC1	mV Meter(1) : Maximum (S1:0V)
	2	89.9 M	5-15	89.9	T1,T3	
	3	Repeat No.1-2 alternately so that the mv meter indicates the maximum output.				
IMAGE	1	129.3 M	70-90	107.9	TC1	mV Meter(1) : Minimum (S1:0V)
IFT	1	98.1 M	5-15	98.1	T2	mV Meter(1) : Maximum (S1:0V)
IHF	1	98.1 M	13	98.1	T71	mV Meter(1) : Maximum (S1:0V)
Max Sep	1	98.1 S	65	98.1	VR152	mV Meter(1) : Separation Maximum (S1:0V)
ST,THD	1	98.1 S	65	98.1	T71	mV Meter(1) : Minimum (S1:0V)
Max Sep	1	98.1 S	65	98.1	VR152	mV Meter(1) : Separation Maximum (S1:0V)
Soft Mute	1	98.1 M	65	98.1	.....	mV Meter(1) : A(0dB)(STEREO MODE)
	2	98.1 M	15	98.1	VR156	mV Meter(1) : A-3dB
ARC	1	98.1 S	40	98.1	VR52	mV Meter(1) : Separation 5dB±3dB (STEREO MODE)
SD	1	98.1 S	22	98.1	VR51	Oscilloscope(2) : Approx. 3V(S2:5V)

CLOCK ADJUSTMENT

No.	Adjustment Point	Adjustment Method Point
1		Pin73 of IC601 connect to 5V
2	TC601	Frequency Counter : 1.048576MHz±2Hz

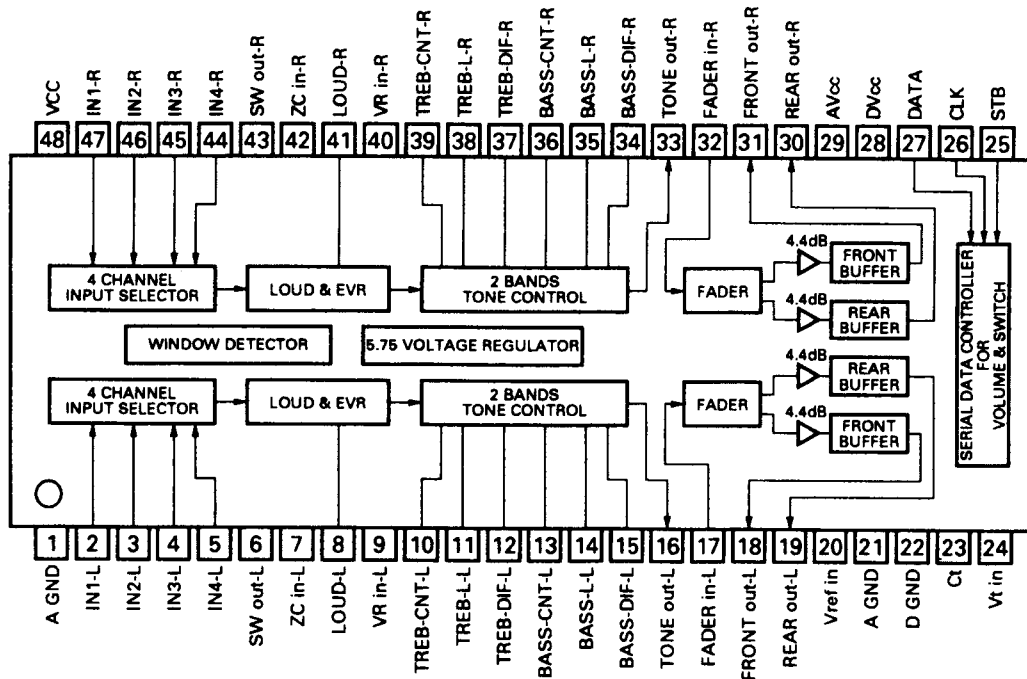
RDS SL ADJUSTMENT

No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
	Frequency(MHz)	Level(dBf)			
1	98.1 S	45	98.1	VR701	DC V Meter(4) : 1.75V±0.05V

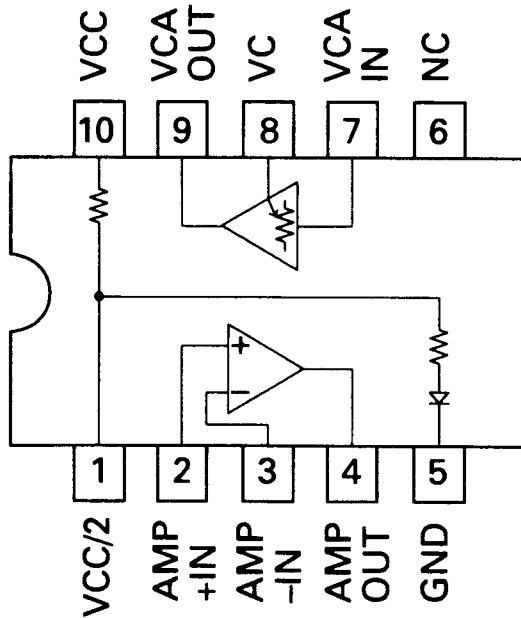
DOLBY B/C NR ADJUSTMENT

No.	Test Tape	Adjustment Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz,200nwb/m)	VR301(Lch),VR302(Rch)	mV Meter(2) : -6.0dBs+1.5dB -0.5dB (DOLBY NR Switch : OFF)

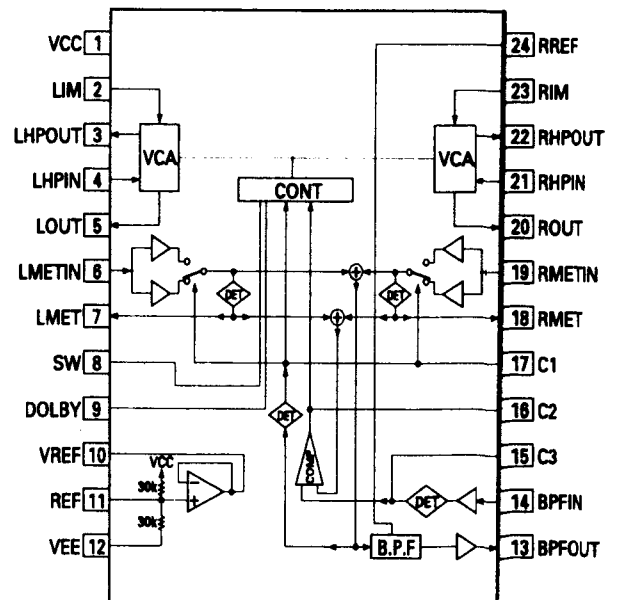
● ICs
SN761025DL



M5282FP



PA0059AM



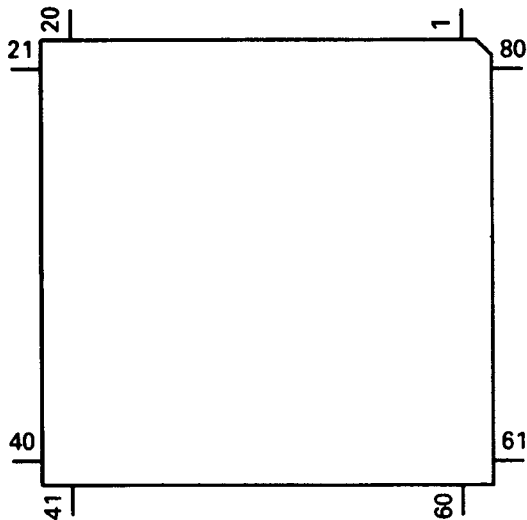
● Pin Functions(PDR019B)

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	RIDRST	O	C	RDS reset output
2	RIDSEL	O	C	RDS select output
3	NC			Open
4	AVSS			A/D converter GND
5	RIDRDY	I		RDS ready input
6	VCAVOL	O	C	VCAVOL analog output(D/A)
7	AVREF1	I		D/A converter reference voltage input
8	KYDT	I		Grille microcomputer communication data input
9	DPDT	O	C	Grille microcomputer communication data output
10	SWVDD	O	C	Grille microcomputer power supply output
11	RIDDI	I		RDS communication data input
12	RIDDO	O	C	RDS communication data output
13	RIDCK	O	C	RDS communication clock output
14	MSIN	I		MS sense
15	MTLSW	I		Metal switch sense
16	POS(TSI)	I		Position sense(Test P data input)
17	RES(TSO)	I		Reverse reel sense(Test P data output)
18	NES(TCK)	I		Normal reel sense(Test P clock output)
19	DIRO	O	C	Head N/R select output
20	PLAY	O	C	MS gain select output
21	DLBYBC	O	C	Dolby B/C NR select output
22	NR	O	C	Noise redaction output
23	SC2	O	C	Submotor control 2
24	SC1	O	C	Submotor control 1
25	CM	O	C	Capstan motor control
26	STBY	O	C	Drive IC control
27	LOADSW	I		Loading switch sense
28	FLEX	O	C	Tune-up IC control
29	PDI	I		PLL data input
30	PCK	O	C	PLL clock output
31	PDO	O	C	PLL data output
32	PCE	O	C	PLL chip enable output
33	VSS			GND
34	MONO	O	C	Forced monaural output
35	AM/FM	O	C	AM/FM select output
36	NCB	O	NH	DYNAS filter select output
37	SUBW0	O	NH	Subwoofer control 0
38	SUBW1	O	NH	Subwoofer control 1
39	NC			Open
40	TUNPW	O	C	Tuner power output
41	ASENBO	O	C	Slave power supply control
42	BUSMUTE	O	C	BUS mute output
43	TMUTE	O	C	Tuner mute output
44	DMUTE	O	C	Deck mute output
45	PEE	O	C	Beep tone output
46	MUTE	O	C	mute output
47	SYSPW	O	C	System power control
48	ANTFIX	O	C	FM diversity select output
49	PCL	O	C	Output for clock adjustment
50	LCDPW	O	C	LCD backlight power supply output
51	DIM	O	C	DIMMER select output
52	ILMPW	O	C	Illumination power supply output
53	CESENS	I		Flap close sense
54	ISENS	I		Illumination sense
55	PRBSBW	I		PREOUT/SUBWOOFER select input
56	TX	O	C	IP-BUS data output
57	RX	I		IP-BUS data input

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
58	IPPW	O	C	IP-BUS driver Power supply control
59	SD	I		SD input
60	RESET	I		System reset input
61	TELIN	I		TEL mute input
62	BSENS	I		Back up sense
63	ASENS	I		ACC sense
64	DSENS	I		Detach sense
65	VST	O	C	E.VOL strobe output
66	VDT	I		E.VOL data input
67	VCK	O	C	E.VOL clock output
68	VDD			Power supply
69	X2			Main system clock connection
70	X1			Main system clock connection
71	IC(VPP)			GND
72	XT2			
73	TESTIN	I		Test program input
74	AVDD			A/D converter analog power supply
75	AVREF0	I		A/D converter reference voltage input
76	SL	I		Signal level input(A/D)
77	SEL0	I		Input 0 for destination discrimination
78	SEL1	I		Input 1 for destination discrimination
79	LEVL	I		Audio Lch level input(A/D)
80	LEVR	I		Audio Rch level input(A/D)

I/O Format	Meaning
C	C MOS
NH	High resistivity N channel open drain

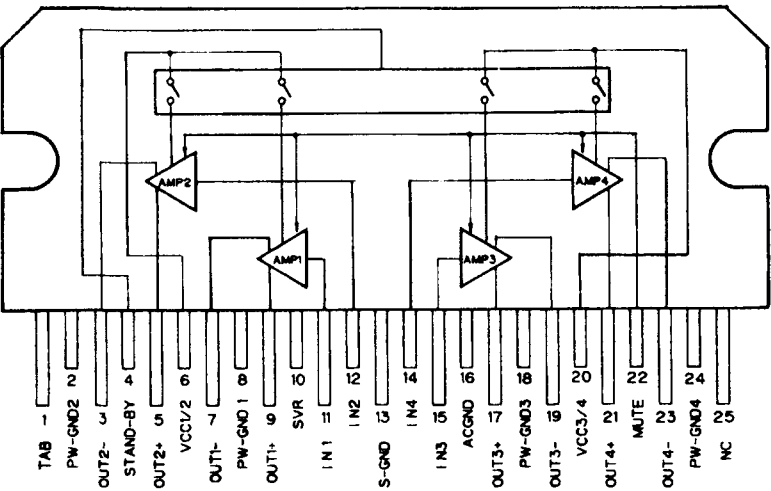
***PDR019B**



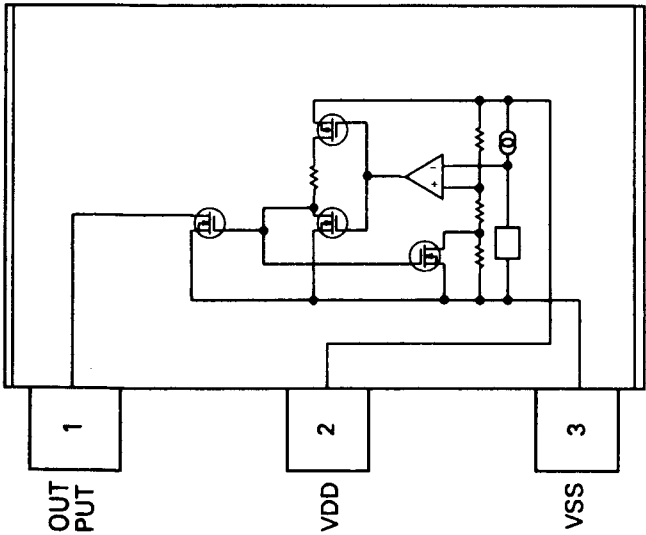
IC's marked by* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

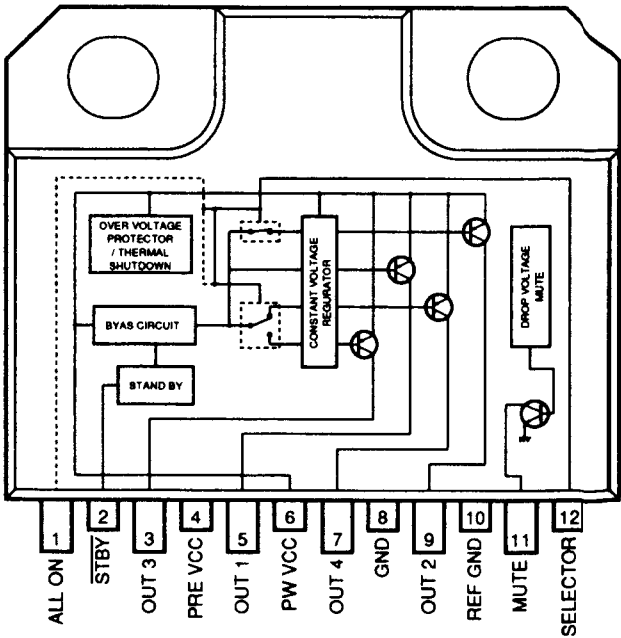
PAL003A



*S-80734ANDYI



PA2024A

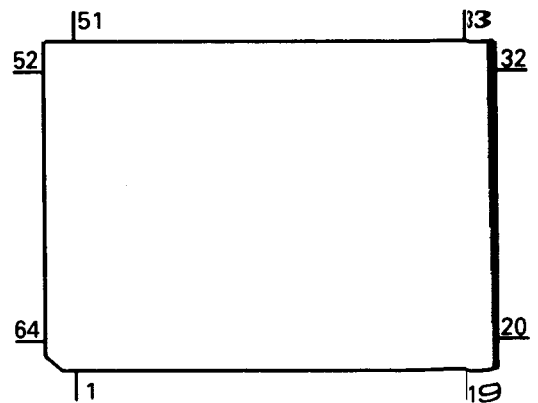


● Pin Functions(PD6147A)

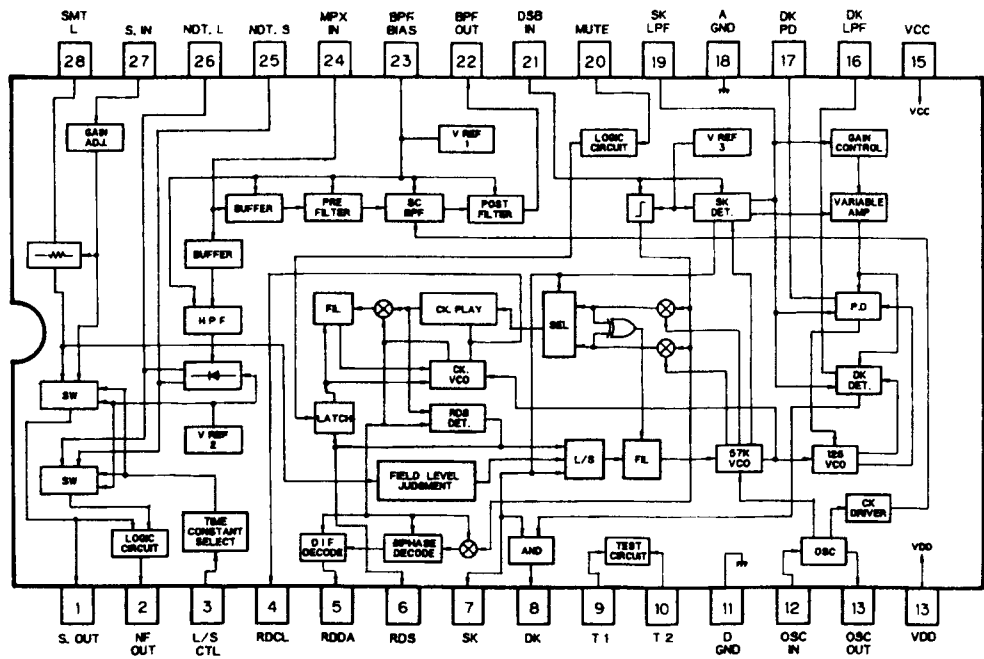
Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1-3	NC			Not used
4	SLIN	I		Signal level input
5	NL	I		Noise level input
6	FL	I		Filter mode input
7	DK	I		DK signal input
8	NCB	O	N	Filter fix output
9-11	NC			Not used
12	AVCC			Analog power supply
13	AVR			5V power supply
14	AVSS			GND
15	RISEL	I		Select input
16	RCK	I		RDS demodulation clock input
17	RDT	I		RDS demodulation data input
18	RDSLK	I		RDS LK signal input
19	SK	I		SK signal input
20	RIRST1	I		Reset input
21	MOD0			GND
22	MOD1			GND
23	XIN	I		Crystal oscillating element connection pin
24	XOUT	O	C	Crystal oscillating element connection pin
25	VSS			GND
26	DRST	O	C	Decoder reset output
27	LS		C	Sensitivity of noise level select
28	NC			Not used
29	RECIVE	O	C	During RDS data reception output
30-49	NC			Not used
50	VSS			GND
51	RITEST	I		Test terminal
52	RICK	I		Communication clock input
53	RIDI	O	C	Communication data output
54	RIDO	I		Communication data input
55	RIRDY	O	C	Communication ready output
56	CNTSEL			GND
57	VCC			5V
58	SD	I		SD signal input
59	MDSSENS	I		Modulation detect input
60-64	NC			Not used

*PD6147A

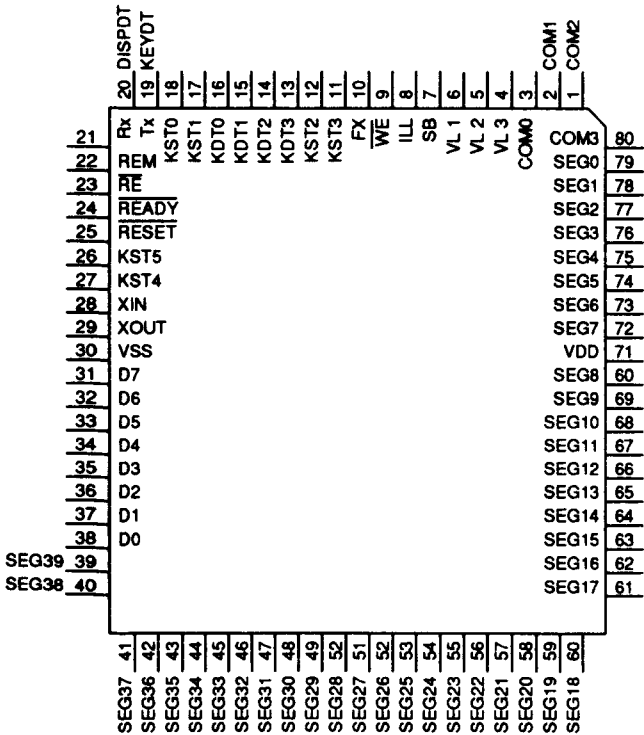
I/O Format	Meaning
C	C MOS
N	N channel open drain



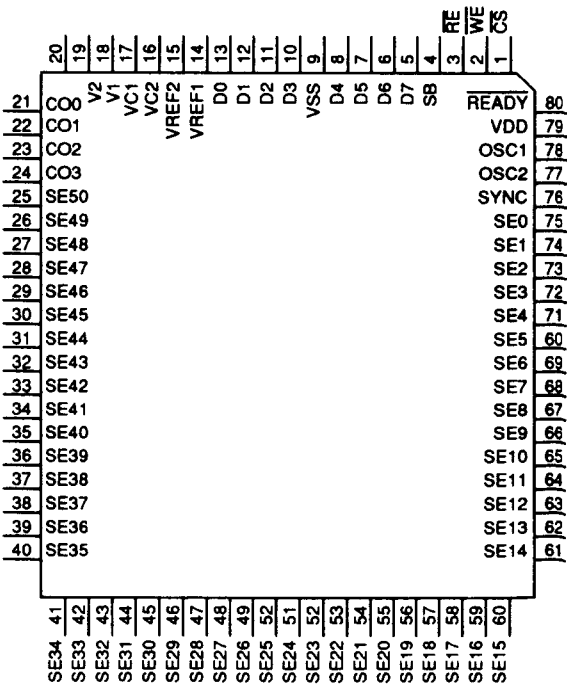
*PMR001B



*PD5273A

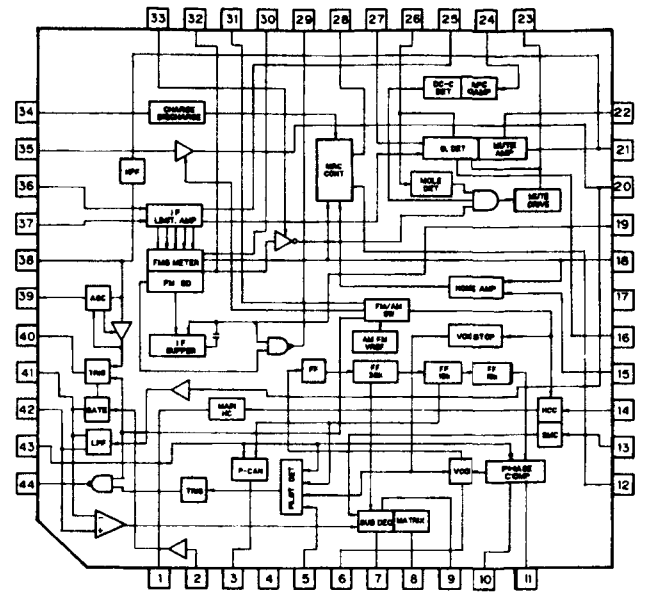
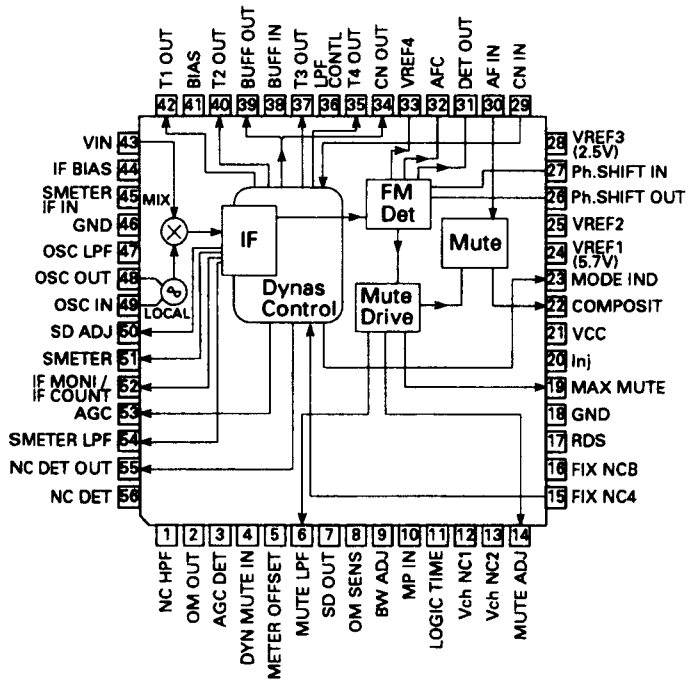


*HD61602RH

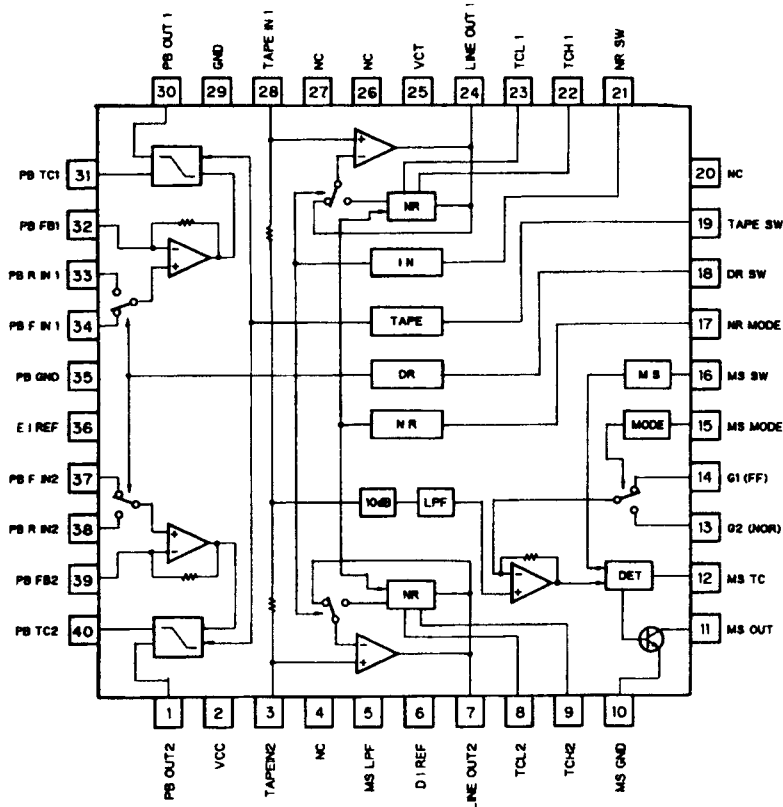


HA12186F

LA1868M-PA



CXA1911Q



17

KEH-P9200RDS,P8200RDS,KEX-P820RDS

====Circuit Symbol & No. Part Name=====	Part No.
C 514 615	CKSQYB102K50
C 516 517	CCSQCH270J50
C 518	CKSQYB102K50
C 523 565	CKSQYB104K16
C 527	CKSYF224Z25
C 528	CKSQYB183K25
C 531 641 726	CKSQYB102K50
C 551 552 553 554	CEAR22M50NPLL
C 560	CEA220M16LL
C 562	CEHAQ472M16
C 563	CEA330M10LL
C 603	CCSQCH330J50
C 604	CCSQCH120J50
C 610 713 716 718	CEA100M16LL
C 613	CKSQYB103K25
C 614	CEAS471M10
C 617	CCH1181
C 618 620	CEAS470M10
C 626	CEHAQ102M16
C 627 805 807	CKSQYB103K25
C 631 633 634 635	CCSQCH101J50
C 636	CKSYF105Z16
C 642 643 644	CKSQYB102K50
C 647	CEA100M16LL
C 701 702 703 707 723 724 806 808 1001	CKSQYB103K25
C 705 712	CKSQYB472K50
C 709	CSZR3R3M16
C 710 711	CSZS010M16
C 714	CKSQYB223K50
C 715	CKSQYB393K50
C 717	CKSQYB682K50
C 721 722	CCSQCH180J50
C 801 802 803 804	CEA2R2M50LL
C 813 814 815 816 828 829 830	CEA4R7M35LL
C 827	CEA4R7M35LL
C 834	CEA4R7M35LL

Key Board Unit

Consists of

- Key Board P.C.Board
- Switch P.C.Board

Unit Number : CWM4046

Unit Name : Key Board Unit

(KEH-P9200RDS/EW, X1BEW, KEH-P8200RDS/EW, X1BEW)

MISCELLANEOUS

IC 901	PD5273A
IC 902	HD61602RH
IC 905	RS-30
Q 903	2SC2712
D 901 902	MA153-MC
D 903	CL170FGCD
D 904 905 906 907 908	CL170FGCD
D 909 910 911 912 913	CL170FGCD
D 914 915 916 917 918	CL170FGCD
D 919 920 921 922 923	CL170FGCD
D 924	CL170FGCD
D 926	MA151K-MH
L 901	LCTA4R7K4532
L 902 903	LCTB2R2K2125
X 901	CSS1084
S 901 906 907 912	CSG1043
S 902 903 904 905	CSG1041
S 908 909 910 911	CSG1041
S 913 918 920 921	CSG1043
S 914 915 916 917	CSG1041

====Circuit Symbol & No. Part Name=====	Part No.
S 919	Switch
S 930	Switch
LCD901	EL
	LCD

RESISTORS

R 901 902	RS1/2S222J
R 904	RS1/16S121J
R 905	RS1/8S151J
R 906 907 908 909 910 911 912 913 914 915	RS1/16S470J
R 920 923 935 936 955	RS1/16S473J
R 921 922 924 925 926 929 930 931	RS1/16S472J
R 933 957	RS1/16S102J
R 934	RA3C102J
R 938 942	RA4C102J
R 939	RS1/16S103J
R 946 947 952	RS1/4S391J
R 948 949 950 951	RS1/4S391J
R 958	RS1/16S2R2J

CAPACITORS

C 901 902	CSZSR100M6R3
C 914 921	CKSQYB104K16
C 915 916 917 919 920	CKSQYB473K16
C 922	CKSQYB273K50

Unit Number : CWM4219

Unit Name : Inverter Unit

MISCELLANEOUS

Q 640	2SD1864
L 606	CTT1038

RESISTORS

R 609	RS1/10S512J
R 621	RS1/10S241J

CAPACITORS

C 629	CKSQYB473K16
C 630	CEA100M16LL

Unit Number : CWE1356

Unit Name : Tuner Unit(KEH-P9200RDS/EW, X1BEW)

MISCELLANEOUS

IC 1	PA2021B
IC 51	HA12186F
IC 52	LA1868M-PA
Q 1	3SK195
Q 2 73	2SC4099
Q 3 5 6 10 11 51 87 210	DTC124EU
Q 20	DTC143TU
Q 41 86 152	2SC4116
Q 71	2SC4099
Q 72	HN3C01F
Q 83	2SA1586
Q 84 153 173	DTC124EU
Q 85 154	2SC4116
Q 141	IMX1
Q 142	DTA114TU
Q 171	IMX1
Q 172	IMD1
Q 201	FC12(12G)
D 1	1SV248
D 2 3 4	KV1410-F1

====Circuit Symbol & No. Part Name=====	Part No.	====Circuit Symbol & No. Part Name=====	Part No.
D 6 202	MA157-MR	R 50	RS1/16S121J
D 31	1SV249	R 54 209 222	RS1/16S822J
D 81 84	HVR320	R 55 81	RS1/16S681J
D 82 83	HVR320	R 56 57 140 201	RS1/16S822J
D 86 171	MA110-1A	R 58	RS1/16S243J
D 151	DTZ3R6A	R 61 166 179 214	RS1/16S333J
D 152	DTZ3R0A	R 63	RS1/16S334J
D 201	MA110-1A	R 67	RS1/16S123J
D 203	SVC203CP	R 68	RS1/16S681J
L 1 Inductor	LCTBR12K2125	R 69	RS1/16S331J
L 2 51 52 Inductor	LCTA150K3225	R 70	RS1/16S0R0J
L 4 Coil	CTC1068	R 71	RS1/16S471J
L 71 72 Inductor	LCTB3R9K2125	R 72 77 80 97 101 213	RS1/16S222J
L 201 Inductor	CTF1197	R 73	RS1/16S151J
L 202 Coil	CTB1105	R 78 241	RS1/16S471J
L 204 Inductor	LCTB101K2125	R 82 90 122 154	RS1/16S103J
L 205 Inductor	LCTA330K3225	R 84 85	RS1/16S393J
L 206 Inductor	CTF1198	R 86 87	RS1/16S470J
T 1 Coil	CTC1099	R 91	RS1/16S512J
T 2 Coil	CTE1064	R 92	RS1/16S152J
T 3 Coil	CTC1130	R 94	RS1/16S183J
T 51 Coil	CTE1067	R 96	RS1/16S183J
T 52 Coil	CTE1068	R 98 139	RS1/16S123J
T 71 Coil	CTE1058	R 100	RS1/16S182J
T 81 Coil	CTE1093	R 102	RS1/16S564J
T 82 Coil	CTE1097	R 103 155	RS1/16S104J
T 83 84 Coil	CTE1098	R 104 132 136	RS1/16S472J
T 85 Coil	CTE1094	R 121 142 143	RS1/16S102J
T 202 Coil	CTB1104	R 124	RS1/16S472J
T 203 Coil	CTE1106	R 125	RS1/16S182J
T 204 Coil	CTE1107	R 127 128	RS1/16S124J
T 205 Coil	CTE1110	R 129 146 147	RS1/16S683J
TC 1 Trimmer	CCL1019	R 134	RS1/16S682J
TH 71 Thermistor	GGC1072	R 135	RS1/16S272J
CF 1 51 52 Filter	CTF1057	R 145	RS1/16S562J
CF 201 Filter	CTF1027	R 153 245	RS1/16S562J
CF 202 Ceramic Filter	CTF1321	R 157 176	RS1/16S104J
X 81 Radiator	CSS1340	R 158	RS1/16S333J
X 151 Radiator	CSS1314	R 160	RS1/16S105J
X 201 Radiator	CSS1339	R 164	RS1/16S392J
VR 51 81 152 Semi-fixed 47kΩ (B)	CCP1185	R 167 230	RS1/16S333J
VR 52 Semi-fixed 22kΩ (B)	CCP1183	R 175	RS1/16S472J
VR 71 Semi-fixed 2.2kΩ (B)	CCP1177	R 178	RS1/16S334J
AR 1	DSP-141N	R 203	RS1/16S102J
		R 205	RS1/16S823J
RESISTORS		R 207	RS1/16S225J
R 1 3 10 113 114 131 133 171 172	RS1/16S223J	R 215	RS1/16S150J
R 2	RS1/16S271J	R 220	RS1/16S100J
R 5 144	RS1/16S153J	R 221	RS1/16S273J
R 6	RS1/16S820J	R 242	RS1/16S122J
R 7 13	RS1/16S563J	CAPACITORS	
R 9 59 66	RS1/16S473J	C 1 2	CSFACH220J50
R 11	RS1/16S474J	C 3 31 53 72 210 248	KSFAYF473Z25
R 14 15 18 217	RS1/16S563J	C 5	CSFACH270J50
R 21	RS1/16S221J	C 7	CSFACH030C50
R 22	RS1/16S560J	C 8 32 55 241 242	KSFAYB222K50
R 25 83 126	RS1/16S273J	C 9	CSFACH470J50
R 26 88	RS1/16S152J	C 10	CSFASH080D50
R 27 123 141 149 173 174 177	RS1/16S223J	C 11 14 19 20 21 22 41 43 51 61	KSFAYB103K50
R 30 93 168	RS1/16S183J	C 12 13	CSFACH050D50
R 31	RS1/16S181J	C 15 91	KSFAYF104Z25
R 41 42 75 137 138 156 165 216	RS1/16S103J	C 16	CSFACH050D50
R 43 74 89	RS1/16S153J	C 17	CSFARH100D50
R 44 159	RS1/16S0R0J	C 18	CSFARH080D50
R 45 76 79	RS1/16S331J	C 23	EVO10M50
R 48	RS1/16S473J	C 24 81 163 213	KSFAYB223K25

-----Circuit Symbol & No. Part Name-----	Part No.
C 25 104	CKSRYP682K50
C 28	CEV330M10
C 29 85 86 67 68 69 87 96 99 101	CKSRYP103K50
C 33 34 216	CCSRCH100D50
C 54	CCSRCH101J50
C 56	CCSRPH910J50
C 57	CCSRPH470J50
C 58	CKSYB274K16
C 60	CCSRCH560J50
C 62 129 172	CCSRCH101J50
C 63	CCSRCH020D50
C 70 105 132 140 155 156 174 201 203 207	CKSRYP103K50
C 82 98 146 159	CKSQYB104K16
C 83	CCSRCH150J50
C 84	CCSRCH070D50
C 85	CKSYB105K16
C 86	CCSRCH100D50
C 88 100	CKSRYP472K50
C 89 92	CCSRRH121J50
C 90	CKSRYP333K16
C 93	CKSRYP333K16
C 95 109 144 233	CKSRYP332K50
C 97 121	CCSRRH560J50
C 102	CKSYB474K16
C 103	CKSRYP102K50
C 108	CEVNP100M10
C 110	CCSRCH331J50
C 113	CKSRYP223K25
C 122	CKSQYB683K16
C 123 126 157 212 231 234	CEV100M16
C 124 143	CKSYB105K16
C 126 147	CKSRYP332K50
C 127 131	CCSRCH391J50
C 130 136 145 173 175 215 235	CKSRYP103K50
C 133	CEV100M16
C 134	CKSRYP104Z25
C 137	CKSRYP152K50
C 141 208	CEV470M16
C 142	CEV2R2M50
C 151 152	CKSRYP183K25
C 153	CKSQYB104K16
C 154 158 211	CKSYB105K16
C 160	CKSYB473K50
C 161	CKSRYP471K50
C 165	CEV2R2M50
C 171	CKSRYP681K50
C 176	CKSRYP473Z25
C 177	CKSRYP102K50
C 180	CKSRYP223K25
C 204	CCSRTH101J50
C 206	CCSRTH820J50
C 209 220 223 225 227 228	CKSRYP103K50
C 214	CKSRYP153K25
C 218	CEV4R7M35
C 219	CKSQYB473K25
C 221	CCSRCH330J50
C 222	CCSRCH270J50
C 226	CEV4R7M35
C 229	CKSYB684K16
C 230	CKSRYP472K50
C 232	CCSRCH390J50

-----Circuit Symbol & No. Part Name-----	Part No.
Unit Number : CWE1357	
Unit Name : Tuner Unit(KEH-P8200RDS/EW, X1BEW, KEX-P820RDS/EW)	
MISCELLANEOUS	
IC 1	PA2021B
IC 52	LA1868M-PA
Q 1	3SK195
Q 2 73	2SC4099
Q 3 5 6 10 11 51 210	DTC124EU
Q 20	DTC143TU
Q 41 152	2SC4116
Q 71	2SC4099
Q 72	HN3C01F
Q 153	DTC124EU
Q 154	2SC4116
Q 201	FC12(12G)
D 1	1SV248
D 2 3 4	KV1410-F1
D 6 202	MA157-MR
D 31	1SV249
D 151	DTZ3R6A
D 152	DTZ3R0A
D 201	MA110-1A
D 203	SVC203CP
L 1	LCTBR12K1125
L 2 51 52	LCTA150K3225
L 4	CTC1068
L 71 72	LCTB3R9K1125
L 201	CTF1197
L 202	Coil
L 204	Inductor
L 205	Inductor
L 206	Inductor
T 1	Coil
T 2	Coil
T 3	Coil
T 51	Coil
T 52	Coil
T 71	Coil
T 202	Coil
T 203	Coil
T 204	Coil
T 205	Coil
TC 1	Trimmer
TH 71	Thermistor
CF 1 51 52	DTN-T202V221KS
CF 201	Filter
CF 202	Filter
X 151	Ceramic Filter
X 201	
VR 51 152 156	Semi-fixed 47kΩ (B)
VR 52	Semi-fixed 22Ω (B)
AR 1	
RESISTORS	
R 1 3 10 113 114	RS1/16S22J
R 2	RS1/16S27J
R 5	RS1/16S15J
R 6	RS1/16S82J
R 7 13	RS1/16S56J
R 9 59 66	RS1/16S47J
R 11	RS1/16S47J
R 14 15 18 217	RS1/16S56J
R 21	RS1/16S22J
R 22	RS1/16S56J

====Circuit Symbol & No. Part Name=====	Part No.	====Circuit Symbol & No. Part Name=====	Part No.
R 25	RS1/16S273J	C 56	CCSRPH910J50
R 26	RS1/16S152J	C 57	CCSRPH470J50
R 27	RS1/16S223J	C 58	CKSYB394K16
R 30 168	RS1/16S183J	C 60	CCSRCH560J50
R 31	RS1/16S181J	C 62	CCSRCH101J50
R 41 42 75 156 165 216	RS1/16S103J	C 63	CCSRCH020D50
R 43 74	RS1/16S153J	C 70 105 155 156 201 203 207	CKSRYB103K50
R 44	RS1/16S0R0J	C 71	CKSRYB103K50
R 45 76 79	RS1/16S331J	C 102	CKSYB474K16
R 48	RS1/16S473J	C 103	CKSRYB102K50
R 50	RS1/16S121J	C 108	CEVNP100M10
R 54 209 222	RS1/16S822J	C 109 233	CKSRYB332K50
R 55	RS1/16S331J	C 110	CKSRYB332K50
R 56 57 201	RS1/16S822J	C 113	CKSRYB223K25
R 58	RS1/16S243J	C 157 212 231 234	CEV100M16
R 61 166 214	RS1/16S333J	C 151 152	CKSRYB183K25
R 63	RS1/16S334J	C 153	CKSQYB104K16
R 67	RS1/16S123J	C 154 158 211	CKSYB105K16
R 68	RS1/16S681J	C 159	CKSQYB104K16
R 69	RS1/16S331J	C 160	CKSYB473K50
R 70	RS1/16S0R0J	C 161	CKSRYB471K50
R 71	RS1/16S471J	C 162	CEV010M50
R 72 77 80 101 213	RS1/16S222J	C 165	CEV2R2M50
R 73	RS1/16S152J	C 204	CCSRTH101J50
R 78	RS1/16S391J	C 206	CCSRTH820J50
R 102	RS1/16S564J	C 208	CEV470M16
R 103 155	RS1/16S104J	C 209 220 223 225 227 228	CKSRYB103K50
R 104	RS1/16S472J	C 214	CKSRYB153K25
R 112	RS1/16S102J	C 215 235	CKSRYB103K50
R 153 245	RS1/16S562J	C 218	CEV4R7M35
R 154	RS1/16S103J	C 219	CKSQYB473K16
R 157	RS1/16S104J	C 221	CCSRCH330J50
R 158	RS1/16S333J	C 222	CCSRCH270J50
R 159 161	RS1/16S103J	C 226	CEV4R7M35
R 160	RS1/16S105J	C 229	CKSYB684K16
R 164	RS1/16S183J	C 230	CKSRYB472K50
R 167 230	RS1/16S333J	C 232	CCSRCH390J50
R 169	RS1/16S0R0J		
R 203	RS1/16S102J	Unit Number : CWM3953	
R 205	RS1/16S823J	Unit Name : Deck Unit	
R 207	RS1/16S225J	(KEH-P8200RDS/EW, X18EW, KEH-P8200RDS/EW, X18EW)	
R 215	RS1/16S150J		
R 220	RS1/16S100J	MISCELLANEOUS	
R 221	RS1/16S273J	IC 251	C/A 1911Q
R 241	RS1/16S471J	IC 351	P2O20A
R 242	RS1/16S122J	Q 351	2B 1260
		Q 352	2C 4102
		D 351	MA 1 41K-MH
CAPACITORS		VR 301 302	Semi-fixed 22kΩ (B) C/P 1129
C 1 2	CCSRCH220J50	RESISTORS	
C 3 31 53 72 210 248	CKSRYF473Z25	R 255 256	R1/ 16S181J
C 5	CCSRCH270J50	R 271	R1/ 16S183J
C 7	CCSRCH030C50	R 272	R1/ 16S203J
C 8 32 241 242	CKSRYB222K50	R 273 274 275 276 321 322 351 352 353 354	R1/ 16S102J
C 9	CCSRCH470J50	R 277 281 282 283 284 373 374 375	R1/ 8S0R0J
C 10	CCSRSH080D50		
C 11 14 19 20 21 22 41 43 51 61	CKSRYB103K50	R 278 301 302 371 404	R1/ 16S0R0J
C 12 13	CCSRCH050D50	R 355	R1/ 10S274J
C 15	CKSRYF104Z25	R 356	R1/ 10S202J
C 16	CCSRCH050D50	R 357	R1/ 10S472J
C 17	CCSRRH100D50	R 358 359	R1/ 10S103J
C 18	CCSRRH080D50		
C 23	CEV010M50	R 360	R1/ 10S102J
C 24 163 213	CKSRYB223K25	R 361	R1/ 10S622J
C 25 104	CKSRYB682K50	R 372	R1/ 10S0R0J
C 28	CEV330M10	R 401	R1/ 16S821J
C 29 65 67 68 69 101	CKSRYB103K50	R 402	R1/ 16S392J
C 33 34 216	CCSRCH100D50		
C 54	CCSRCH101J50	R 403	R1/ 16S105J

====Circuit Symbol & No. Part Name===== Part No.

CAPACITORS

C 251 252 253 254	CKSRYB391K50
C 255 256	CKSRYB103K50
C 257 258	CEV470M6R3
C 271 307 308	CKSQYB104K16
C 272 301 302	CEV100M16
C 303 304	CEV010M50
C 305 306	CKSQYB683K16
C 322	CEV100M16
C 351	CKSYB224K25
C 352	CKSQYB392K50
C 353 356	CKSQYB103K50
C 354	CKSQYB473K50
C 355	CKSYB104K50
C 401	CCSRCH151J50
C 402	CKSYB684K16
C 403	CKSYB333K25
C 404	CKSRYB333K16

Unit Number : CWM3954

Unit Name : Deck Unit(KEX-P820RDS/EW)

MISCELLANEOUS

IC 251	CXA1911Q
IC 351	PA2020A
Q 351	2SB1260
Q 352	2SC4102
D 351	MA141K-MH

VR 301 302 Semi-fixed 22kΩ (B)

CCP1129

RESISTORS

R 251 252 253 254	RS1/16S243J
R 255 256	RS1/16S181J
R 271	RS1/16S183J
R 272	RS1/16S203J
R 273 274 275 276 321 322 351 352 353 354	RS1/16S102J
R 277 281 282 283 284 373 374 375	RS1/8S0R0J
R 278 301 302 371 404	RS1/16S0R0J
R 355	RS1/10S274J
R 356	RS1/10S202J
R 357	RS1/10S472J
R 358 359	RS1/10S103J
R 360	RS1/10S102J
R 361	RS1/10S622J
R 372	RS1/10S0R0J
R 401	RS1/16S821J
R 402	RS1/16S392J
R 403	RS1/16S105J

CAPACITORS

C 251 252 253 254	CCSRCH331J50
C 255 256	CKSRYB103K50
C 257 258	CEV470M6R3
C 271 307 308	CKSQYB104K16
C 272 301 302	CEV100M16
C 303 304	CEV010M50
C 305 306	CKSQYB683K16
C 322	CEV100M16
C 351	CKSYB224K25
C 352	CKSQYB392K50
C 353 356	CKSQYB103K50
C 354	CKSQYB473K50
C 355	CKSYB104K50
C 401	CCSRCH151J50
C 402	CKSYB684K16

====Circuit Symbol & No. Part Name===== Part No.

C 403	CKSYB333K25
C 404	CKSRYB333K16

Unit Number :

Unit Name : P.C.Board Unit

S 1 2	Switch (70 μS, Load)	ESG1004
EGN 1	Photo-Interrupter	EGN1005
R 1		RD1/4HM181J

Unit Number :

Unit Name : Reel P.C.Board

EGN 2 3	Photo-Reflector	EGN1004
---------	-----------------	---------

Miscellaneous Parts List

M 1	Motor Unit (Main)	EXA1381
M 2	Motor Unit (Sub)	EXA1382
HD 1	Head Assy	EXA1404
	(KEH-P9200RDS/EW, X1BEW, KEH-P8200RDS/EW, X1BEW)	
HD 1	Head Assy	EXA1398
	(KEX-P820RDS/EW)	

- The KEH-P8200RDS/EW, X1BEW and KEX-P820RDS/EW Parts Lists enumerate the parts which differ from those enumerated in the KEH-P9200RDS/EW, X1BEW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-P9200RDS/EW, X1BEW Parts List is given on page 16.

Tuner Amp Unit

Circuit Symbol & No.	Part Name	KEH-P9200RDS/EW, X1BEW	KEH-P8200RDS/EW, X1BEW
		Part No.	Part No.
IC402,801,802		TC4066BF	.....
IC803,804,805,806		NJM4558MD	.....
Q622		DTA124EK	.....
Q623,624,632		DTC144EK	.....
Q625,626,627		DTA124EK	.....
Q633		DTC144EK	.....
Q801,802,803,804		2SC4213	.....
Q805,806,807,808		2SC2712	.....
Q813,814,815,816		DTC314TK	.....
D627		MA153-MC	.....
D629		MA151WK-MT	.....
D801,802,803,804		MA8180M	.....
L801,802,804	Inductor	LCTB2R2K2125	.....
L803	Inductor	LCTB2R2K2125	.....
S603	Switch	HSH-156	.....
	Tuner Unit	CWE1356	CWE1357
R421,422,424,851,856,857,858		.....	RS1/16S0R0J
R423,852		.....	RS1/16S0R0J
R603		RS1/16S473J	.....
R604		.....	RS1/16S473J
R677,829,830,831,832,833,834,835,836,853		RS1/16S472J	.....
R681,682,854		RS1/16S472J	.....
R691		.....	RS1/16S473J
R692		RS1/16S362J	.....
R693		RS1/16S222J	RS1/16S0R0J
R694		.....	RS1/16S0R0J
R789		.....	RS1/16S0R0J
R801,802,803,804,837,838,839,840,849,850		.....	RS1/16S0R0J
R805,806,807,808,813,814,815,816		RS1/16S223J	.....
R817,818,819		RS1/16S154J	.....
R820		RS1/16S154J	.....
R821,822		RS1/16S114J	.....
R823,824		RS1/16S114J	.....
R825,826,827,828		RS1/16S224J	.....
R841,842,843,844		RS1/16S334J	RS1/16S223J
R845,847		RS1/16S271J	RS1/16S821J
R846,848		RS1/16S271J	RS1/16S821J
R855		RS1/10S220J	.....
R859,860,861,862		RS1/16S104J	.....
R863		.....	RS1/16S0R0J
R864		RS1/16S222J	.....
C635		CCSQCH101J50	.....
C647		CEA100M16LL	.....
C801,802,803,804		CEA2R2M50LL	.....
C805,807		CKSQYB103K25	.....

Circuit Symbol & No.	Part Name	KEH-P9200RDS/EW, X1BEW	KEH-P8200RDS/EW, X1BEW
		Part No.	Part No.
C806,808		CKSQYB103K25	.....
C809,810,811,812		CCSQCH101J50	.....
C813,814,815,816,827,828		CEA4R7M35LL	.....
C825		CEA101M10LL	.....
C829,830,831,832,833,834		CEA4R7M35LL	.....

Tuner Amp Unit

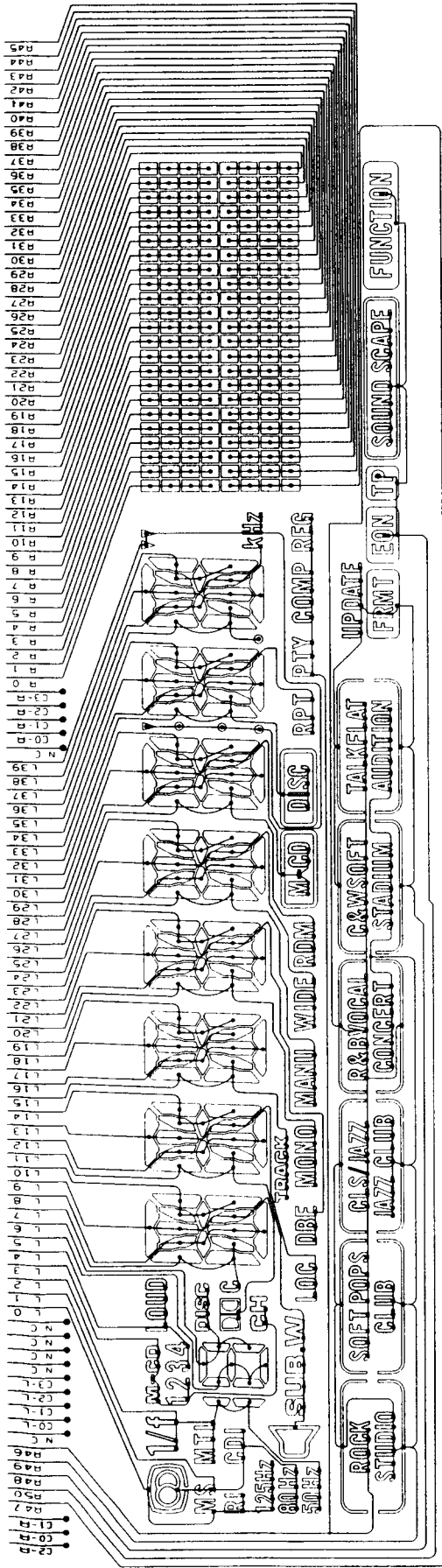
Circuit Symbol & No.	Part Name	KEH-P9200RDS/EW, X1BEW	KEX-P820RDS/EW
		Part No.	Part No.
IC402,801,802		TC4066BF	.....
IC551		PAL003A	.....
IC803,804,805,806		NJM4558MD	.....
Q551,552		DTC124EK	.....
Q622		DTA124EK	.....
Q623,624,632		DTC144EK	.....
Q625,626,627		DTA124EK	.....
Q633		DTC144EK	.....
Q801,802,803,804		2SC4213	.....
Q805,806,807,808		2SC2712	.....
Q813,814,815,816		DTC314TK	.....
D626		ERA15-02VH	.....
D627		MA153-MC	.....
D629		MA151WK-MT	.....
D801,802,803,804		MA8180M	.....
L801,802,804	Inductor	LCTB2R2K2125	.....
L803	Inductor	LCTB2R2K2125	.....
S603	Switch	HSH-156	.....
	Tuner Unit	CWE1356	CWE1357
R421,422,424,851,856,857,858		.....	RS1/16S0R0J
R423,852		.....	RS1/16S0R0J
R551,553,554		RS1/16S103J	.....
R552		RS1/16S331J	.....
R603		RS1/16S473J	.....
R604		.....	RS1/16S473J
R656		RS1/16S182J	RS1/16S472J
R677,829,830,831,832,833,834,835,836,853		RS1/16S472J	.....
R681,682,854		RS1/16S472J	.....
R691		.....	RS1/16S473J
R692		RS1/16S362J	.....
R693		RS1/16S222J	RS1/16S0R0J
R694		.....	RS1/16S0R0J
R789		.....	RS1/16S0R0J
R801,802,803,804,837,838,839,840,849,850		.....	RS1/16S0R0J
R805,806,807,808,813,814,815,816		RS1/16S223J	.....
R817,818,819		RS1/16S154J	.....
R820		RS1/16S154J	.....
R821,822		RS1/16S114J	.....
R823,824		RS1/16S114J	.....
R825,826,827,828		RS1/16S224J	.....

Circuit Symbol & No.	Part Name	KEH-P9200RDS/EW, X1BEW	KEX-P820RDS/EW
		Part No.	Part No.
R841,842,843,844		RS1/16S334J	RS1/16S223J
R845,847		RS1/16S271J	RS1/16S821J
R846,848		RS1/16S271J	RS1/16S821J
R855		RS1/10S220J	.....
R859,860,861,862		RS1/16S104J	.....
R863		RS1/16S0R0J
R864		RS1/16S222J	.....
C551,552,553,554		CEAR22M50NPLL	.....
C559,564		CEA010M50LL	.....
C560		CEA220M16LL	.....
C563		CEA330M10LL	.....
C635		CCSQCH101J50	.....
C647		CEA100M16LL	.....
C801,802,803,804		CEA2R2M50LL	.....
C805,807		CKSQYB103K25	.....
C806,808		CKSQYB103K25	.....
C809,810,811,812		CCSQCH101J50	.....
C813,814,815,816,827,828		CEA4R7M35LL	.....
C825		CEA101M10LL	.....
C829,830,831,832,833,834		CEA4R7M35LL	.....

Key Board Unit

Circuit Symbol & No.	Part Name	KEH-P9200RDS/EW, X1BEW	KEX-P820RDS/EW
		Part No.	Part No.
D903	LED	CL170FGCD	CL170DCD
D904,905,906,907,908,909	LED	CL170FGCD	CL170DCD
D910,911,912,913,914,915	LED	CL170FGCD	CL170DCD
D916,917,918,919,920,921	LED	CL170FGCD	CL170DCD
D922,923,924	LED	CL170FGCD	CL170DCD
LCD901	LCD	CAW1261	CAW1303

● LCD(CAW1261)(KEH-P9200RDS/EW, X1BEW, KEH-P8200RDS/EW, X1BEW)
(CAW1303)(KEX-P820RDS/EW)



COMMON

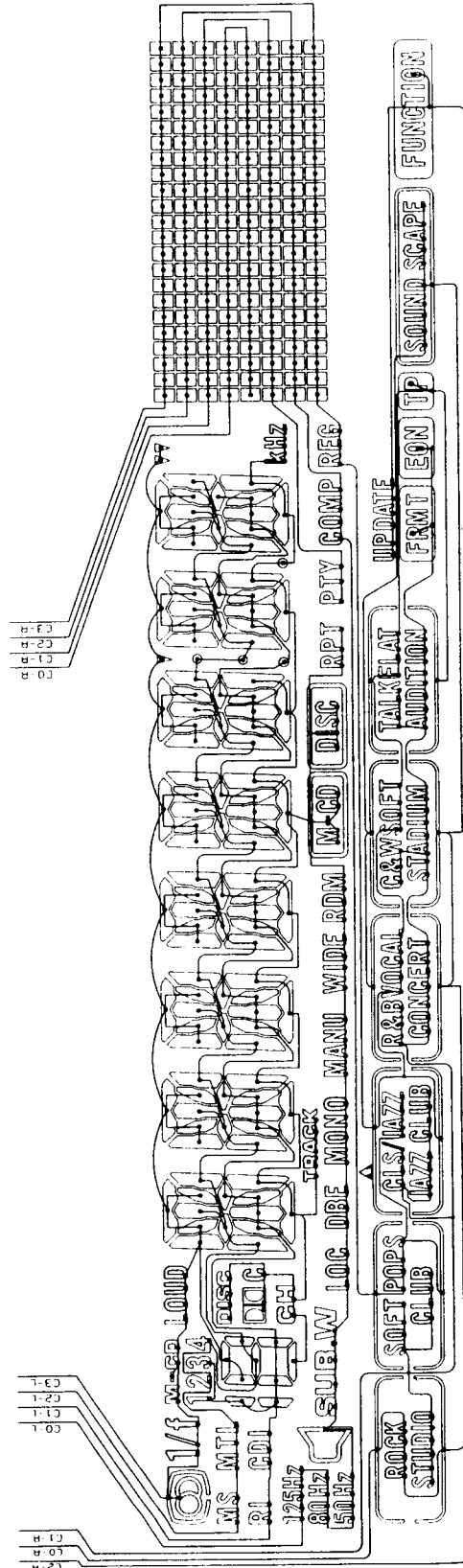
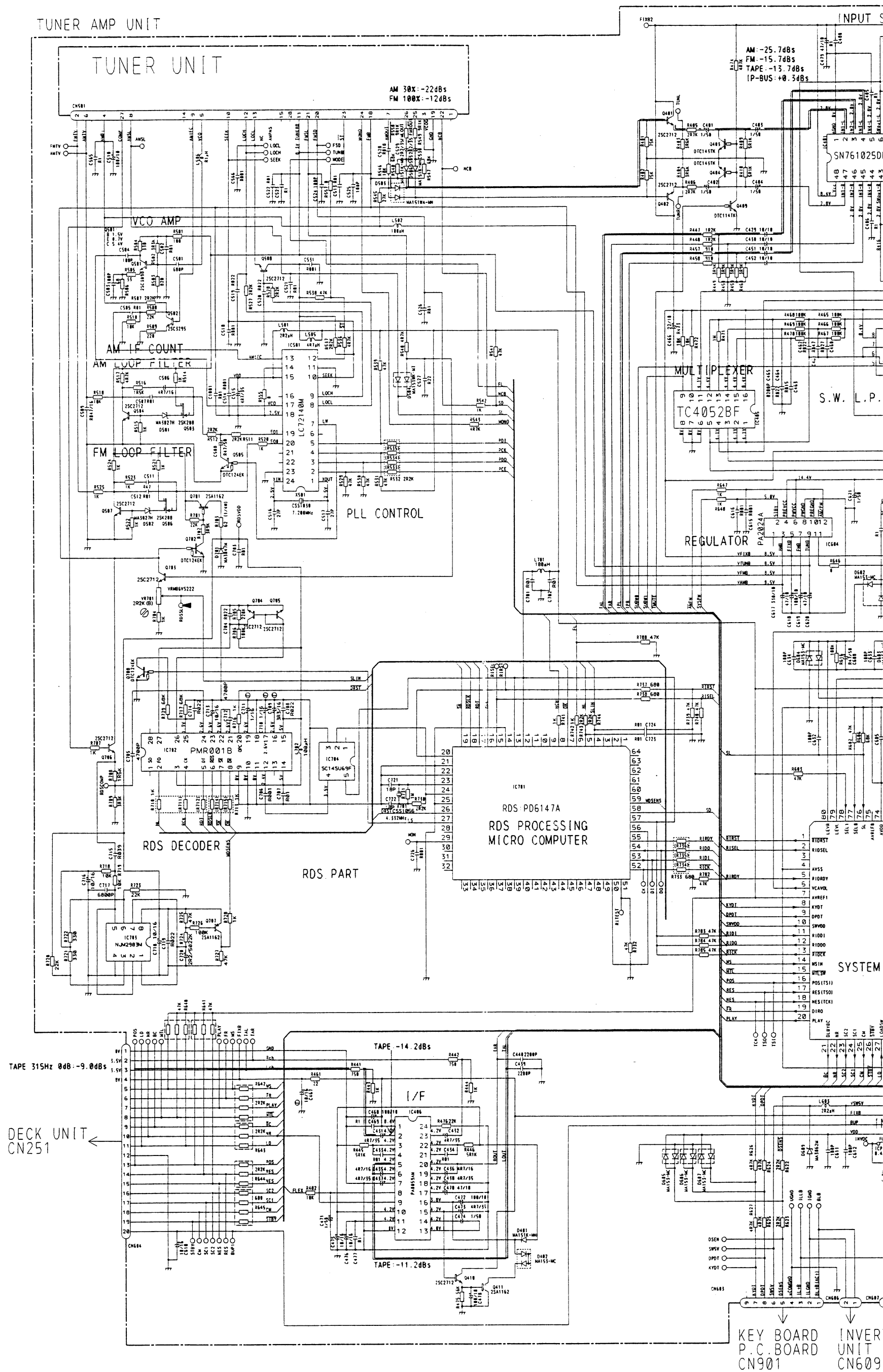


Fig.4



6. SCHEMATIC CIRCUIT DIAGRAM(KEH-P9200RDS/EW, X1BEW)



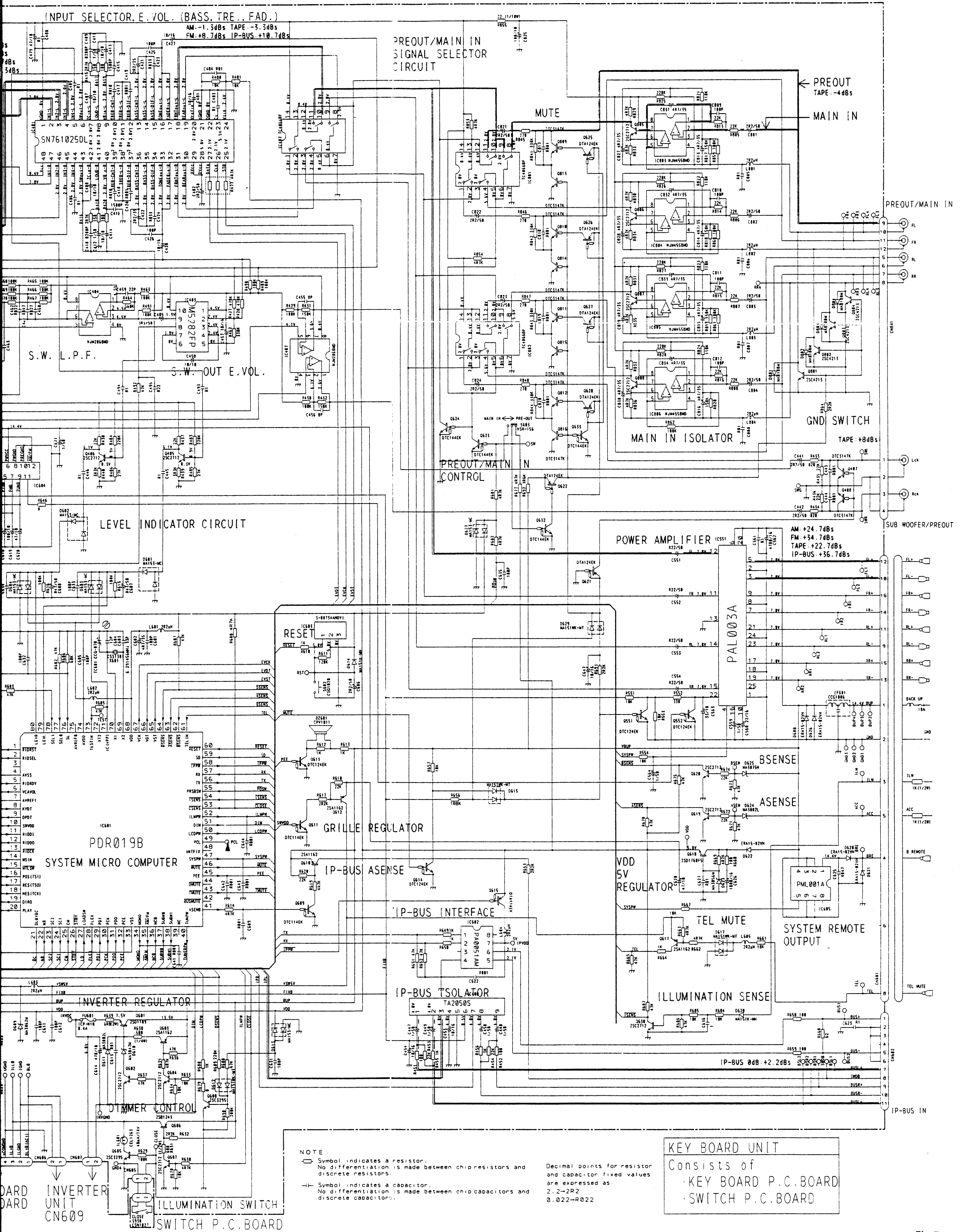
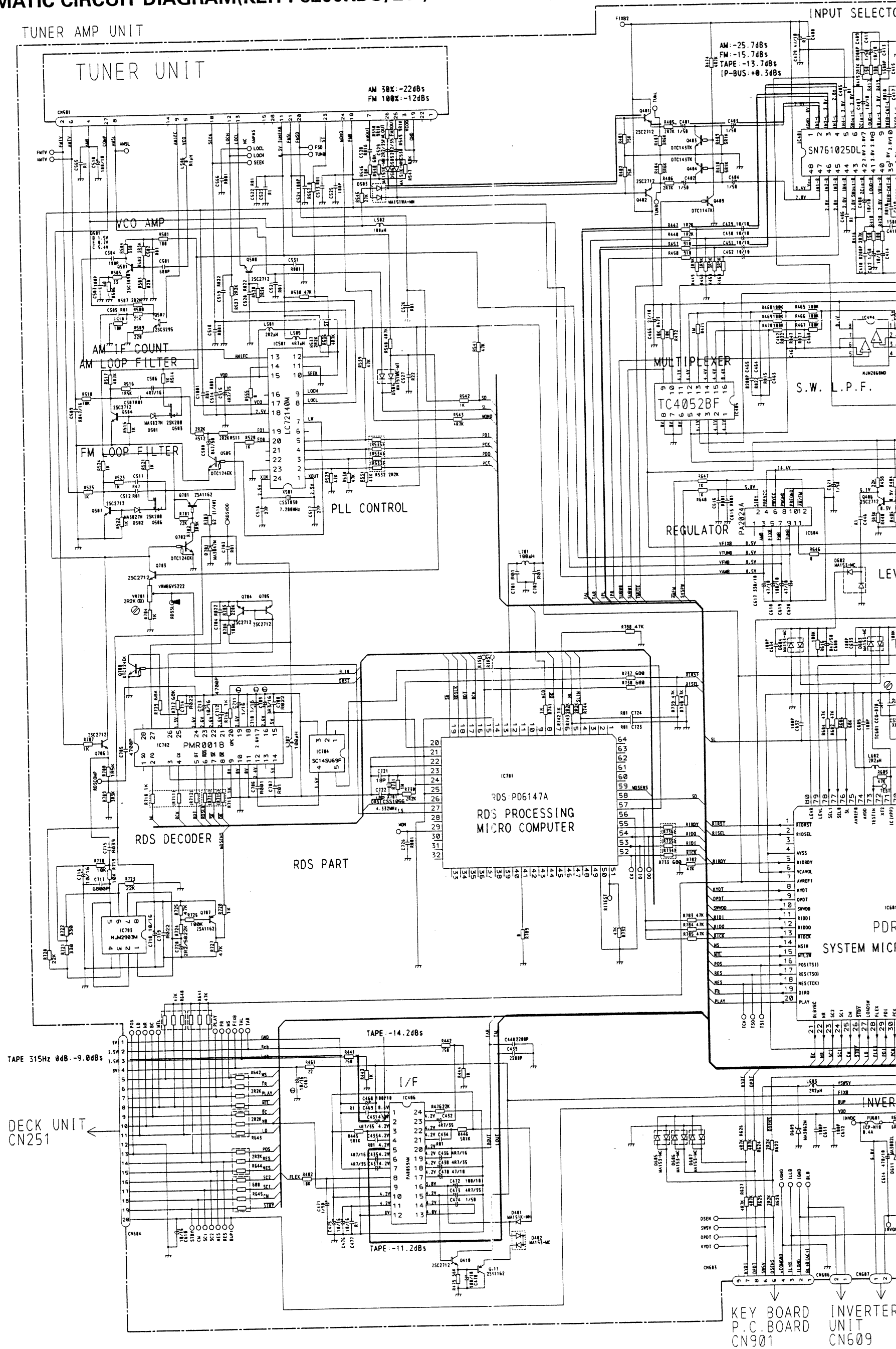


Fig.7

7. SCHEMATIC CIRCUIT DIAGRAM(KEH-P8200RDS/EW, X1BEW)



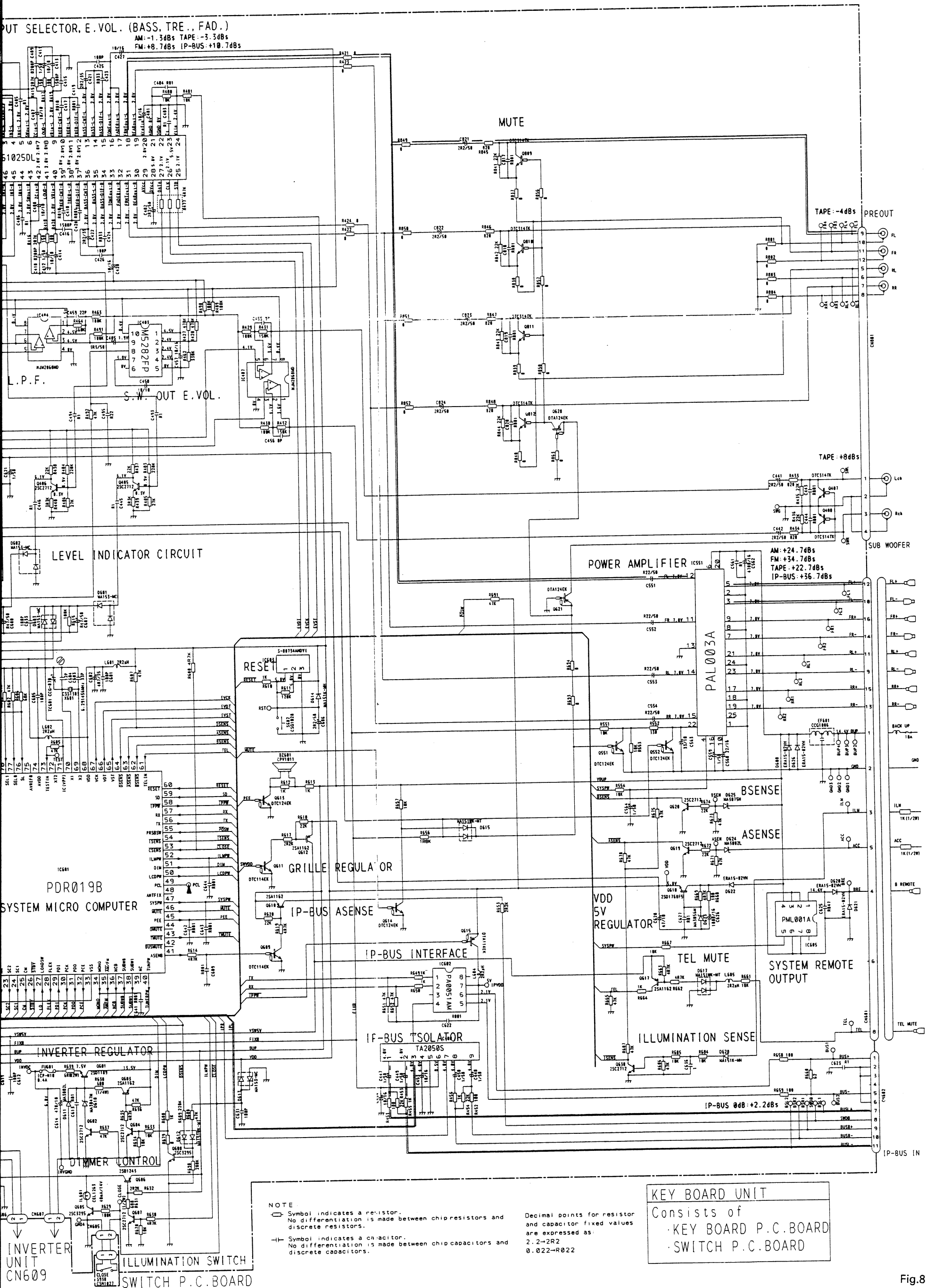
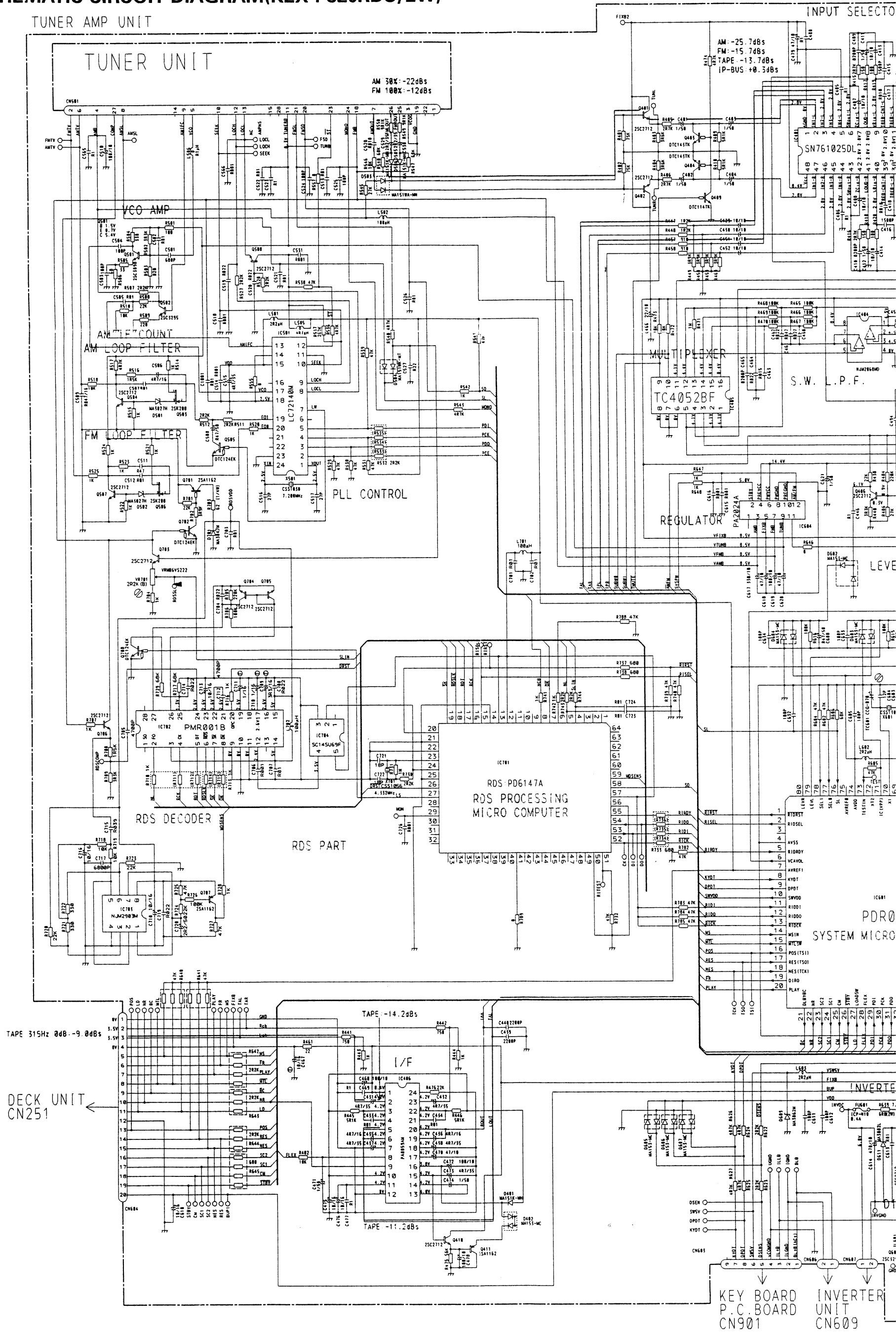
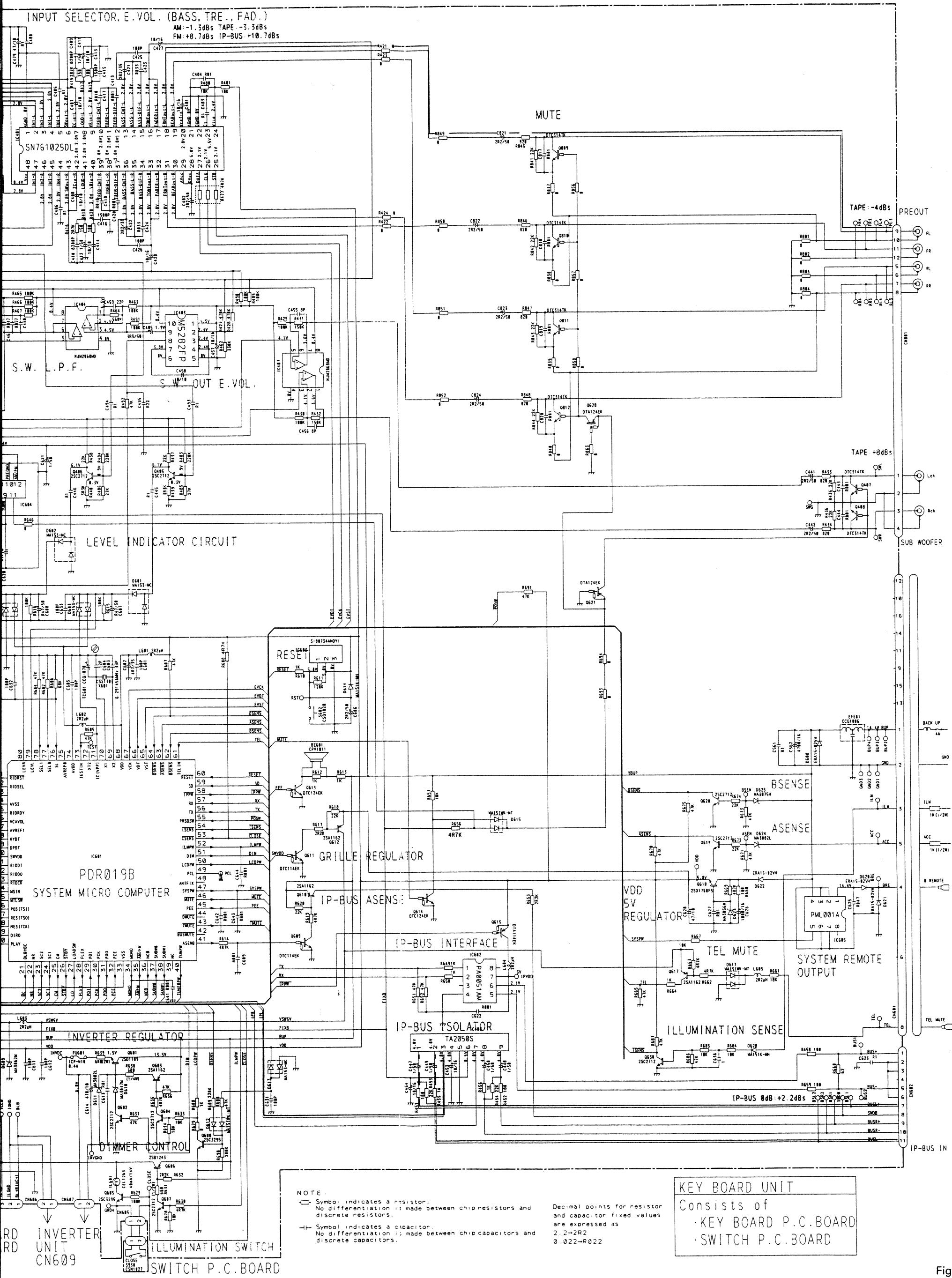


Fig.8

8. SCHEMATIC CIRCUIT DIAGRAM(KEX-P820RDS/EW)






9. CIRCUIT DIAGRAM AND PATTERN

9.1 TUNER UNIT(KEH-P9200RDS/EW, X1BEW)

● Circuit Diagram

NOTE

NOTE
 Symbol indicates a resistor.
 No differentiation is made between chip resistors and discrete resistors.

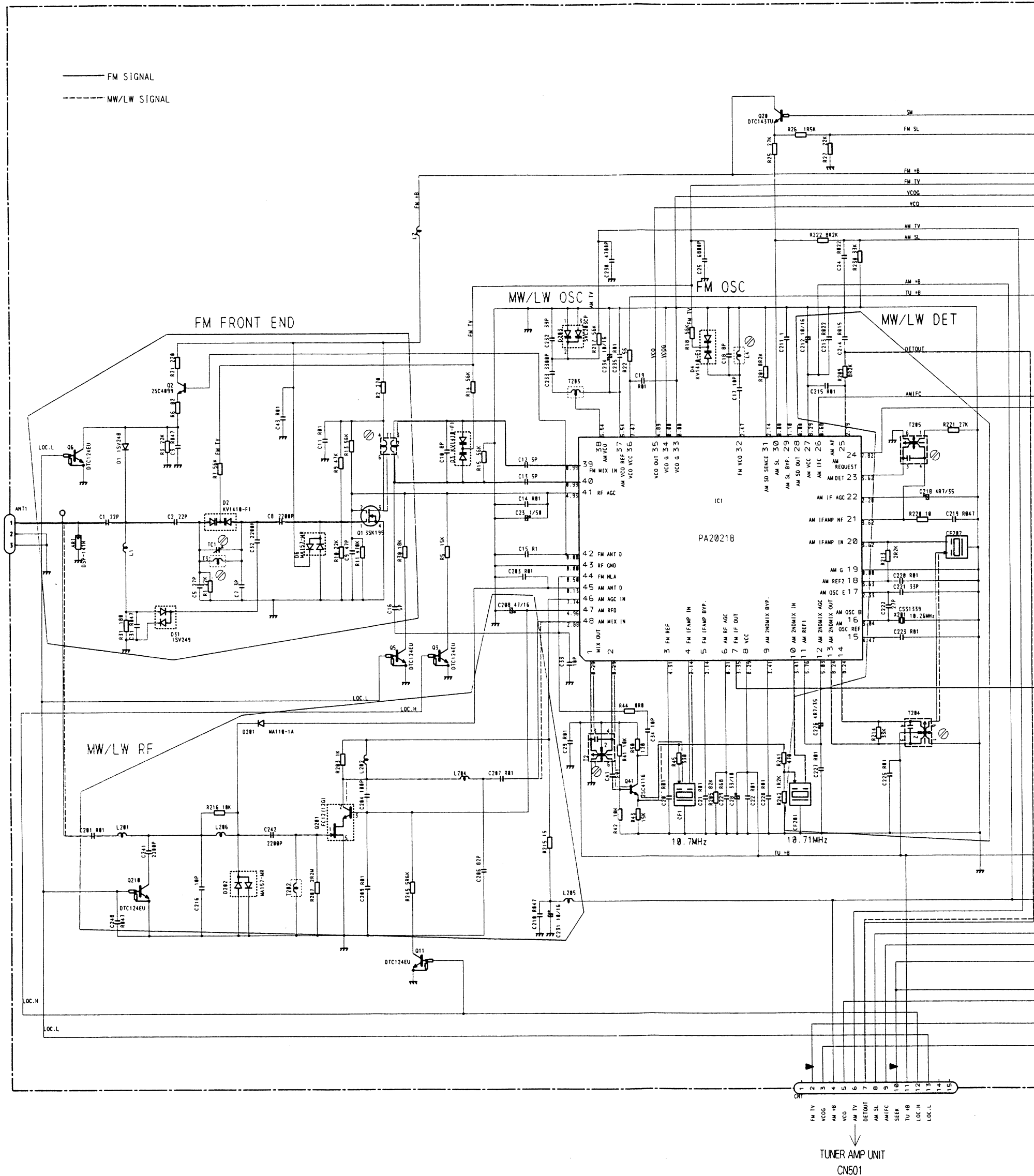
—||— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:

2.2→2R2

0.022→R022

0.022→R022



IC, Q	Q3	Q210 Q11	Q201 Q6 Q1	Q2	Q41	IC1 Q5	Q10	Q51 Q20	Q152	Q71 Q154	Q72 IC52	Q73 Q173	Q141	Q142 Q172 Q171	Q153	Q85	IC51	Q87	Q84	Q83 Q86
ADJ	TC1 T3			T1	T2	T203	T204	T205	VR71 VR152	VR51		T71			T81 VR81	T82	T83		T84 T85	



9.2 TUNER UNIT(KEH-P8200RDS/EW, X1BEW, KEX-P820RDS/EW)

● Connection Diagram

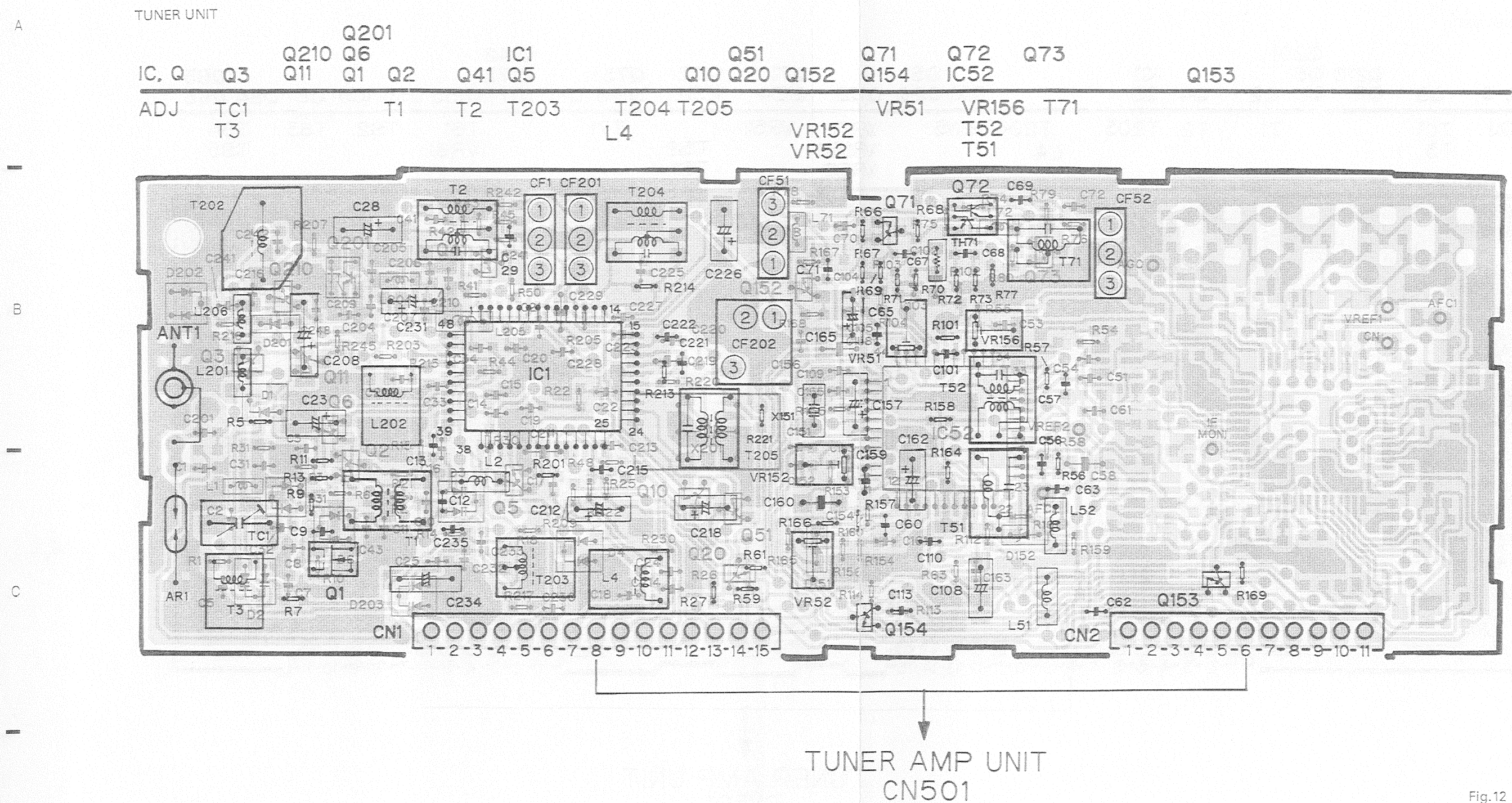
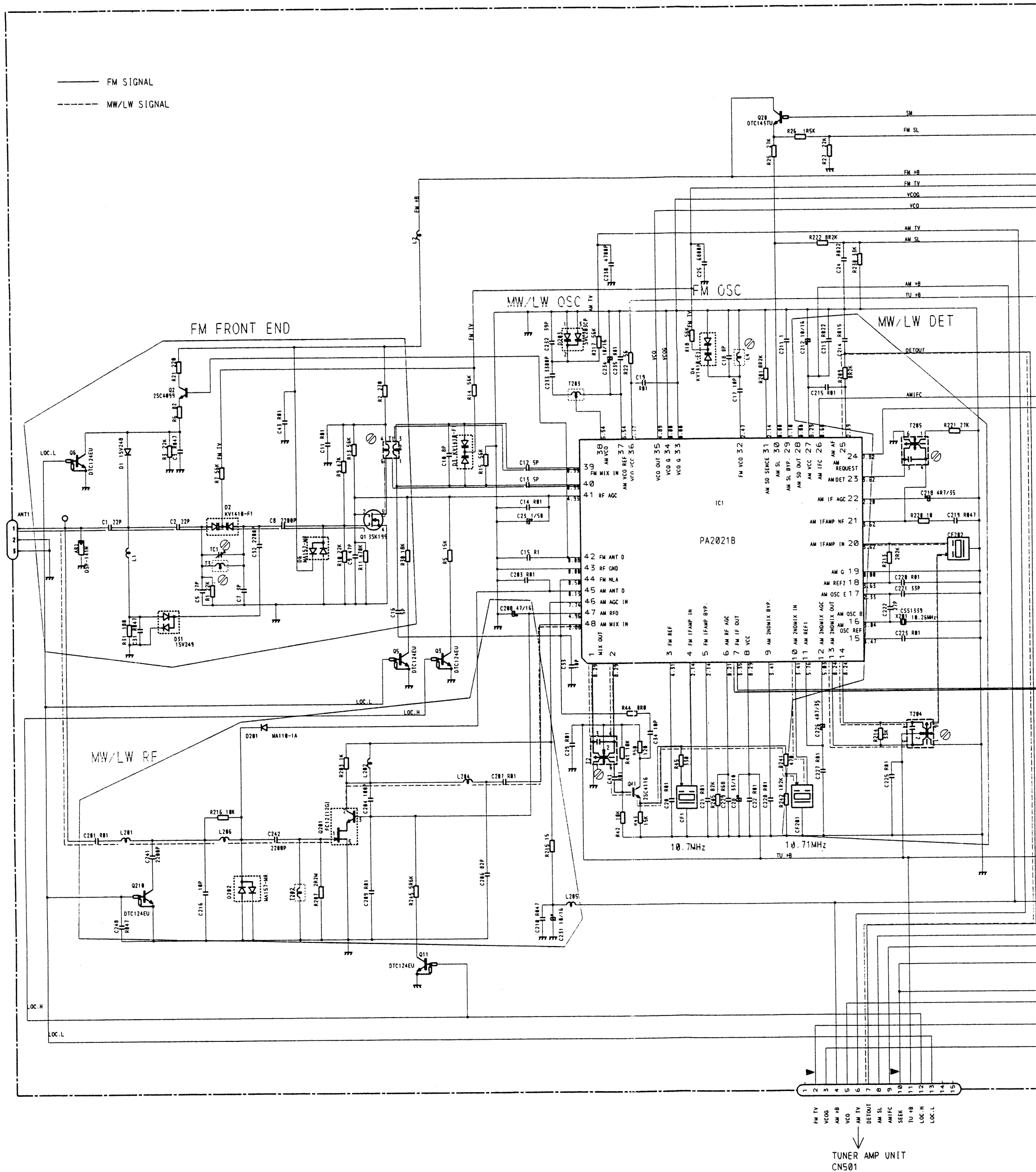


Fig. 12

TUNER UNIT



NOTE:
□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
—||— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

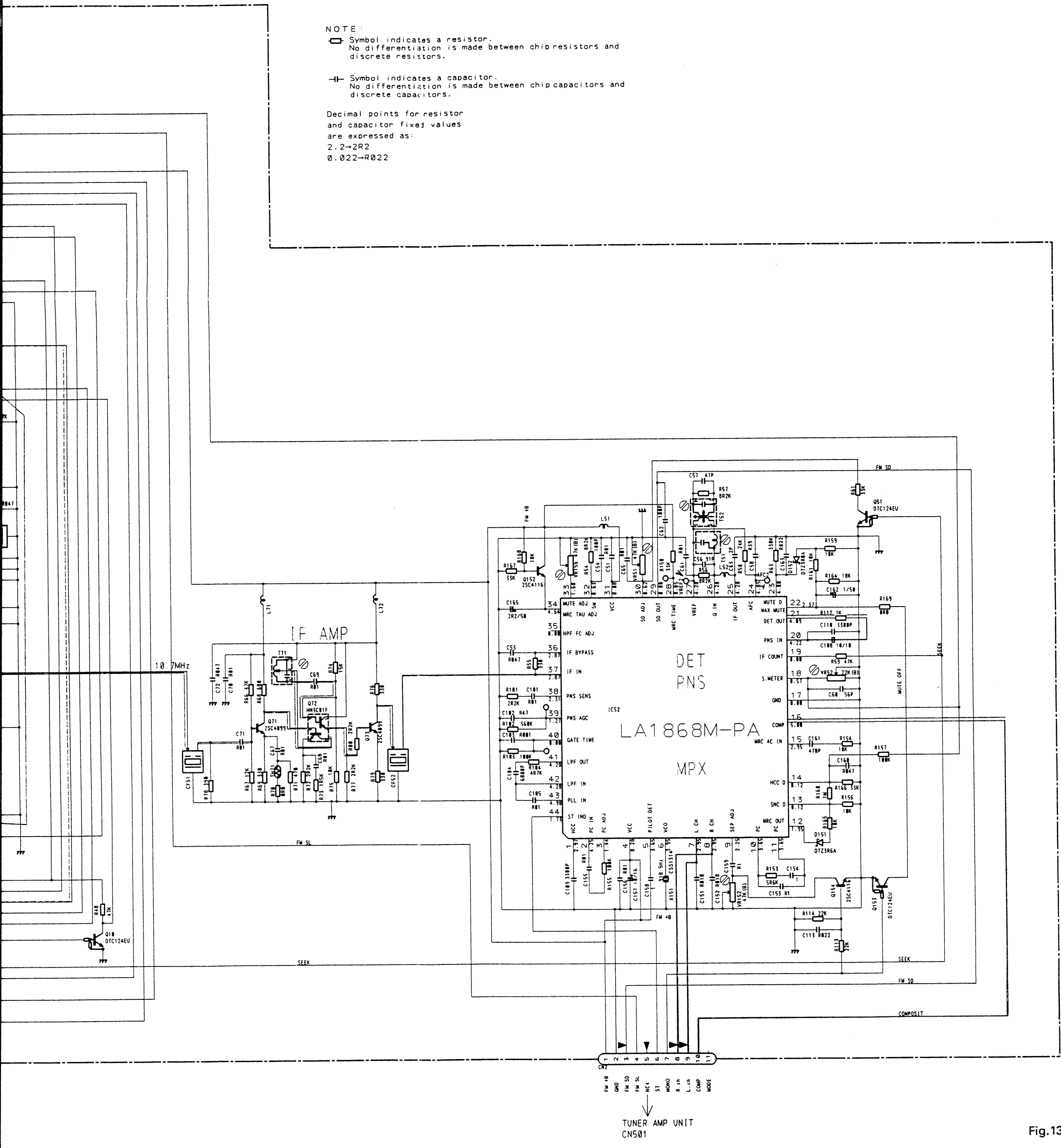
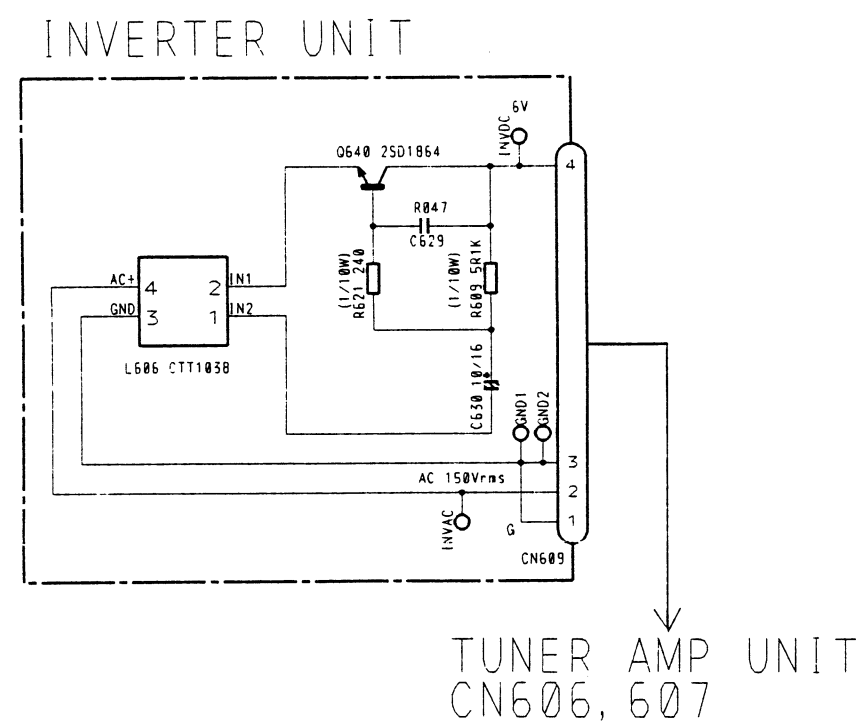




Fig.13

9.3 INVERTER UNIT

● Circuit Diagram



NOTE :

-  Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
-  Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

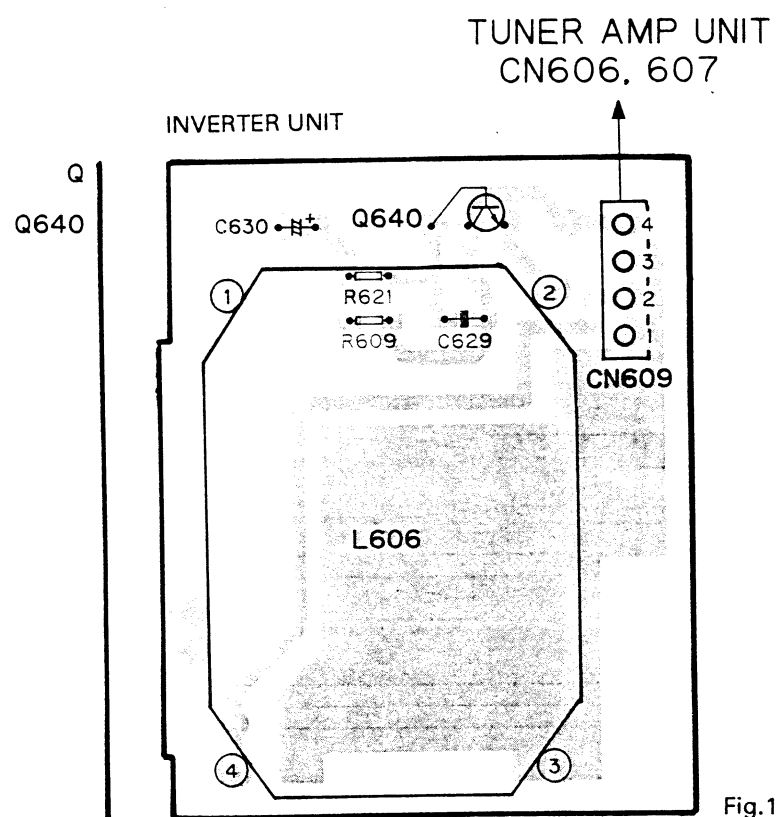
Decimal points for resistor and capacitor fixed values are expressed as:

2.2→2R2

0.022→R022

Fig.14

● Connection Diagram

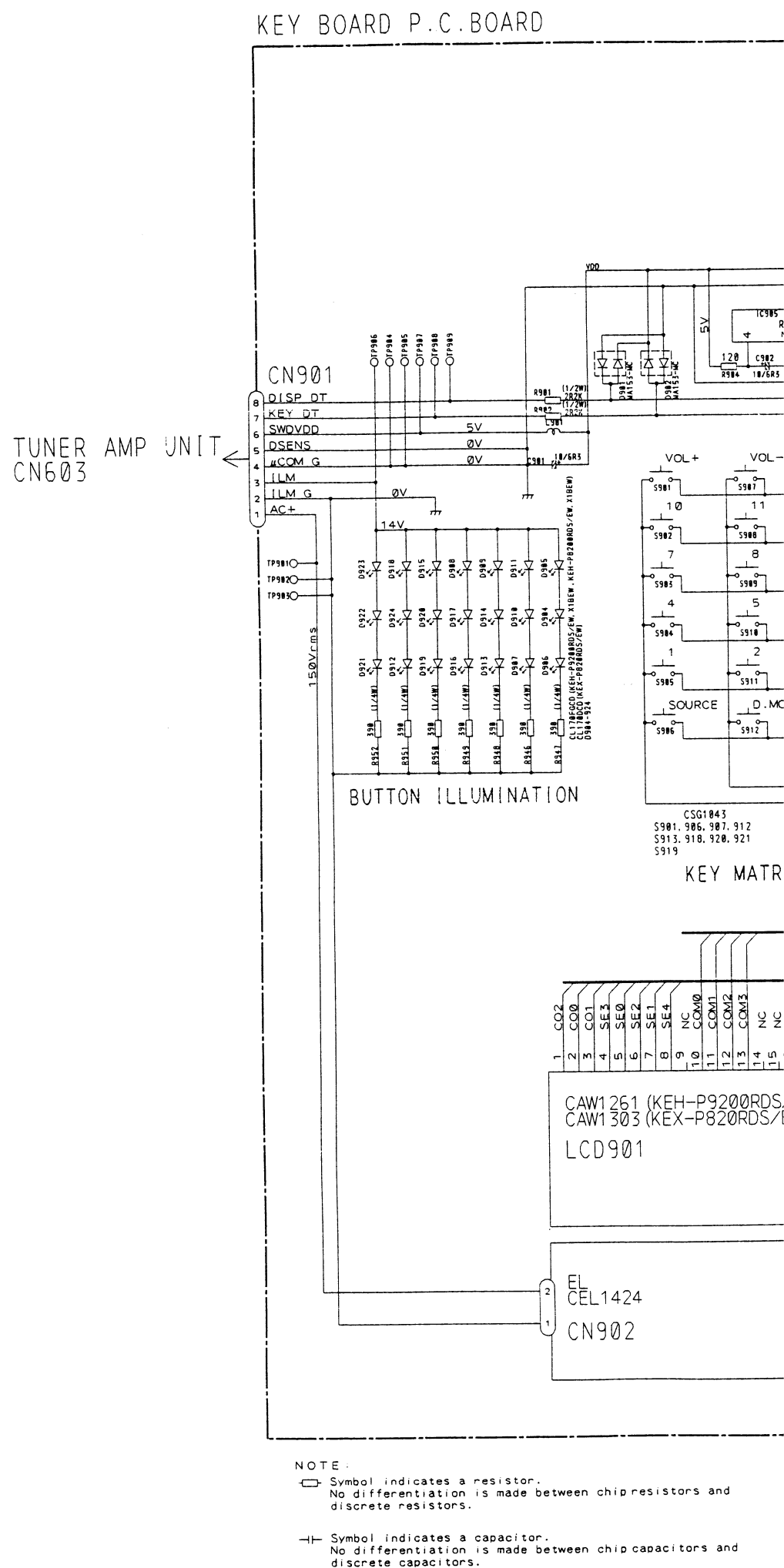


NOTE:

The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

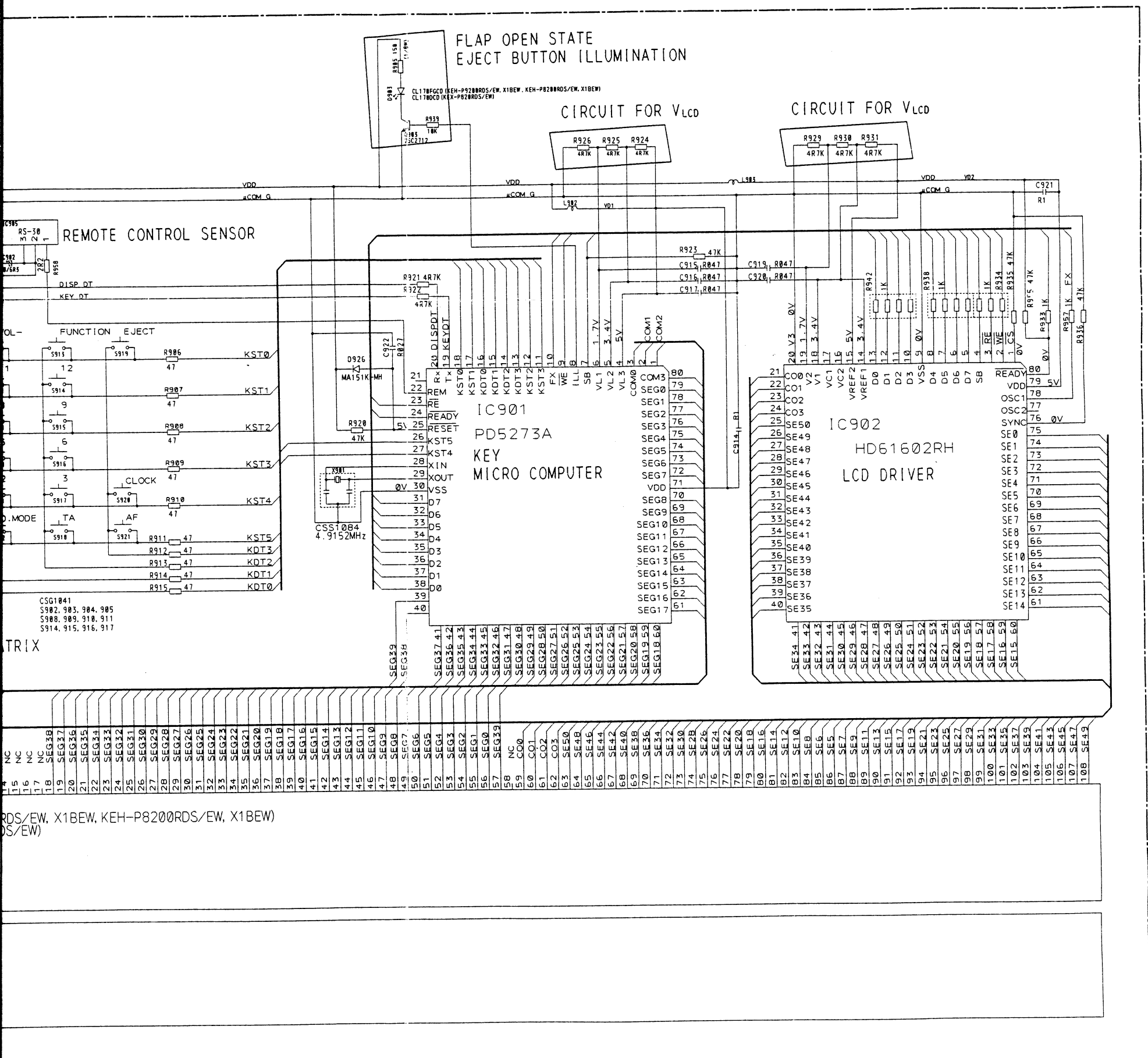
9.4 KEY BOARD UNIT

● Circuit Diagram



NOTE :

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- ⊢ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.



Decimal points for resistor
and capacitor fixed values
are expressed as:
2.2→2R2
0.022→R022

KEY BOARD UNIT
Consists of
·KEY BOARD P.C.BOARD
·SWITCH P.C.BOARD

Fig.16

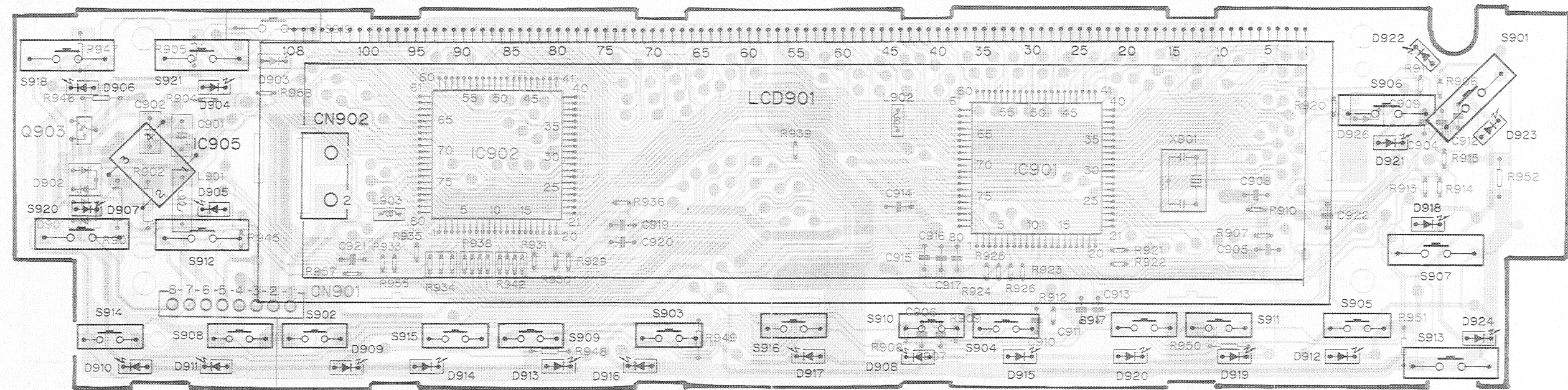
● Connection Diagram

KEY BOARD P.C.BOARD

IC, Q Q903 IC905

IC902

IC901

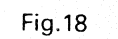


→ TUNER AMP UNIT CN603

Fig.17

NOTE:
The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

● Circuit Diagram



● Connection Diagram

KEH-P9200RDS, P8200RDS, KEX-P8200RDS

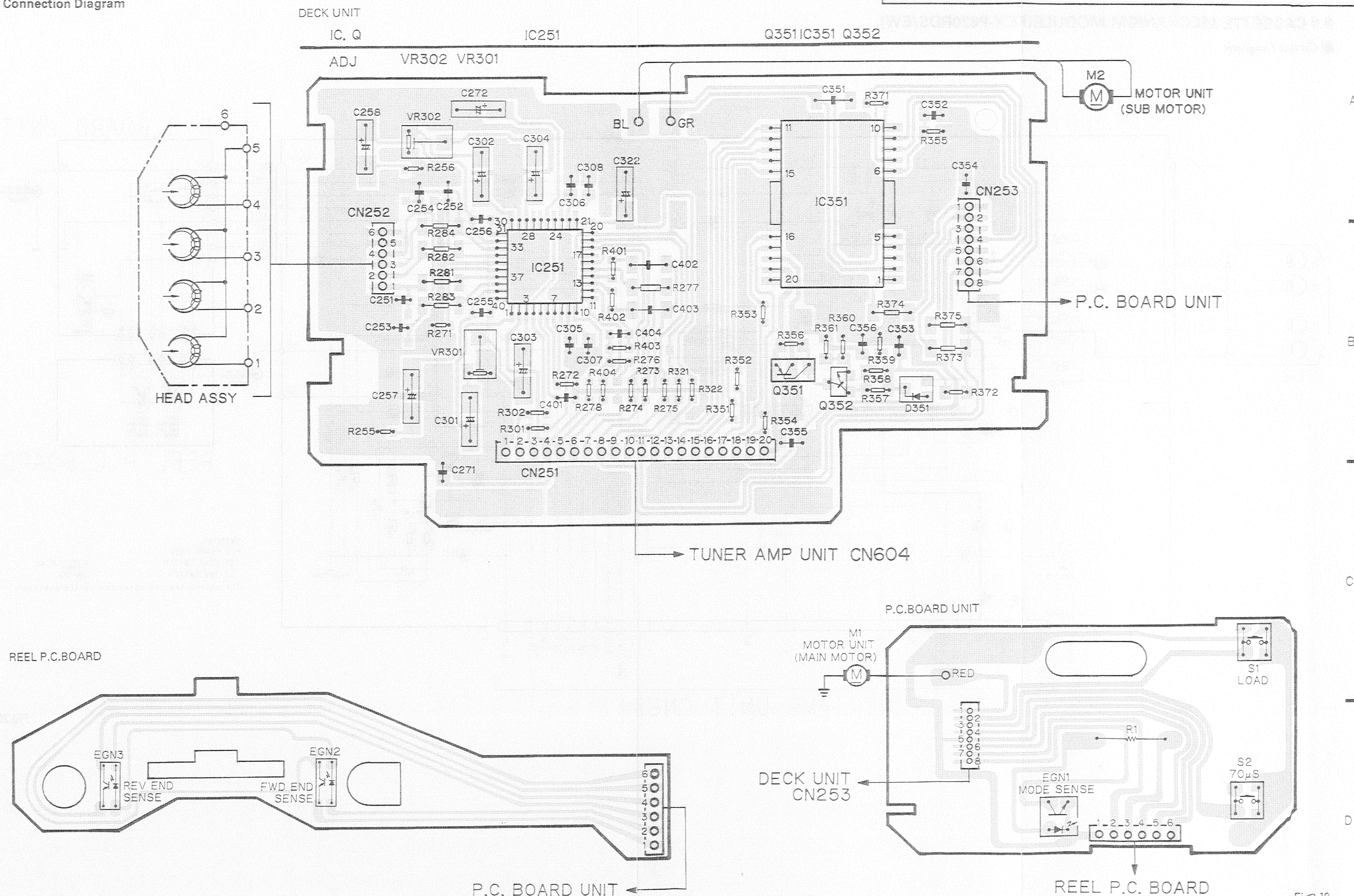


Fig.19

9.6 CASSETTE MECHANISM MODULE(KEX-P820RDS/EW)

● Circuit Diagram

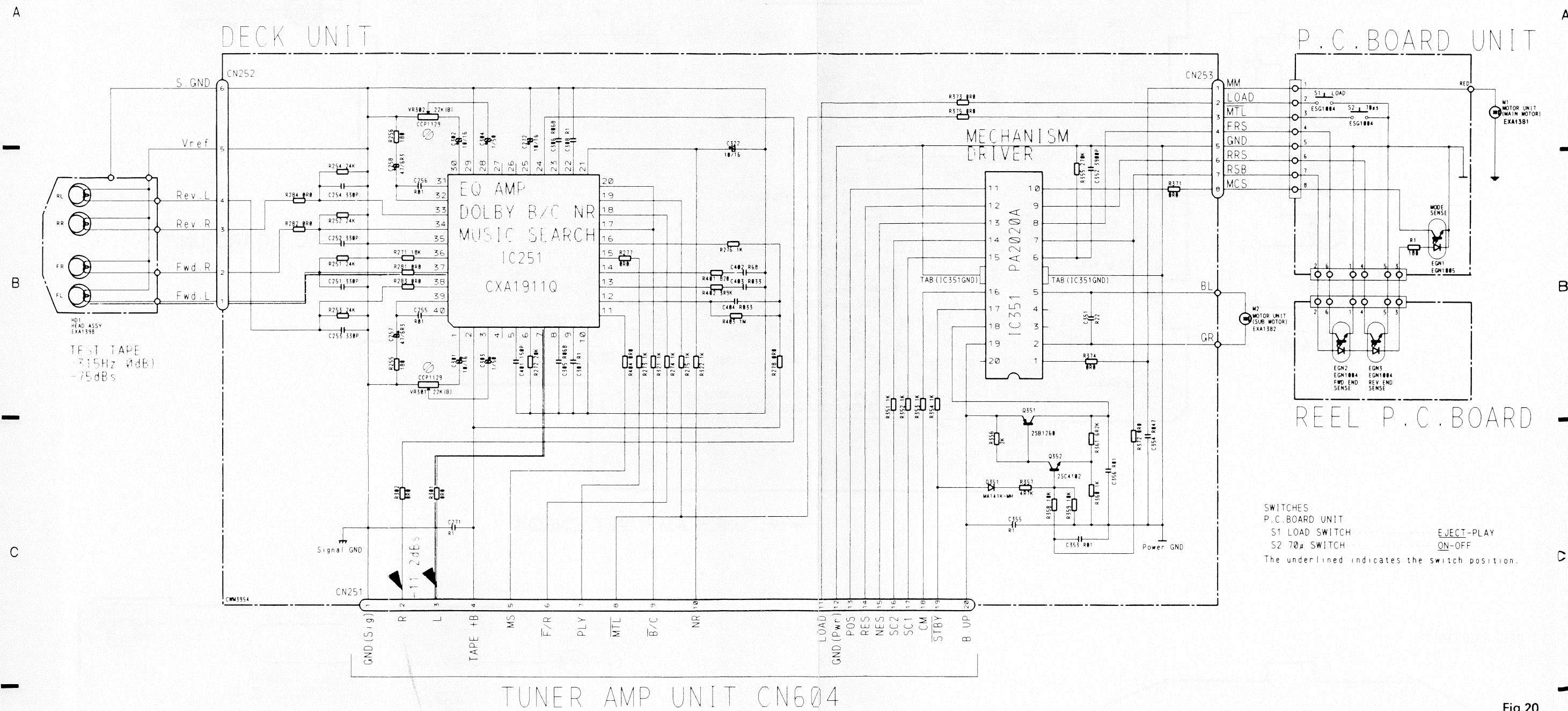


Fig.20

● Connection Diagram

KEH-P9200RDS, P8200RDS, KEX-P820RDS

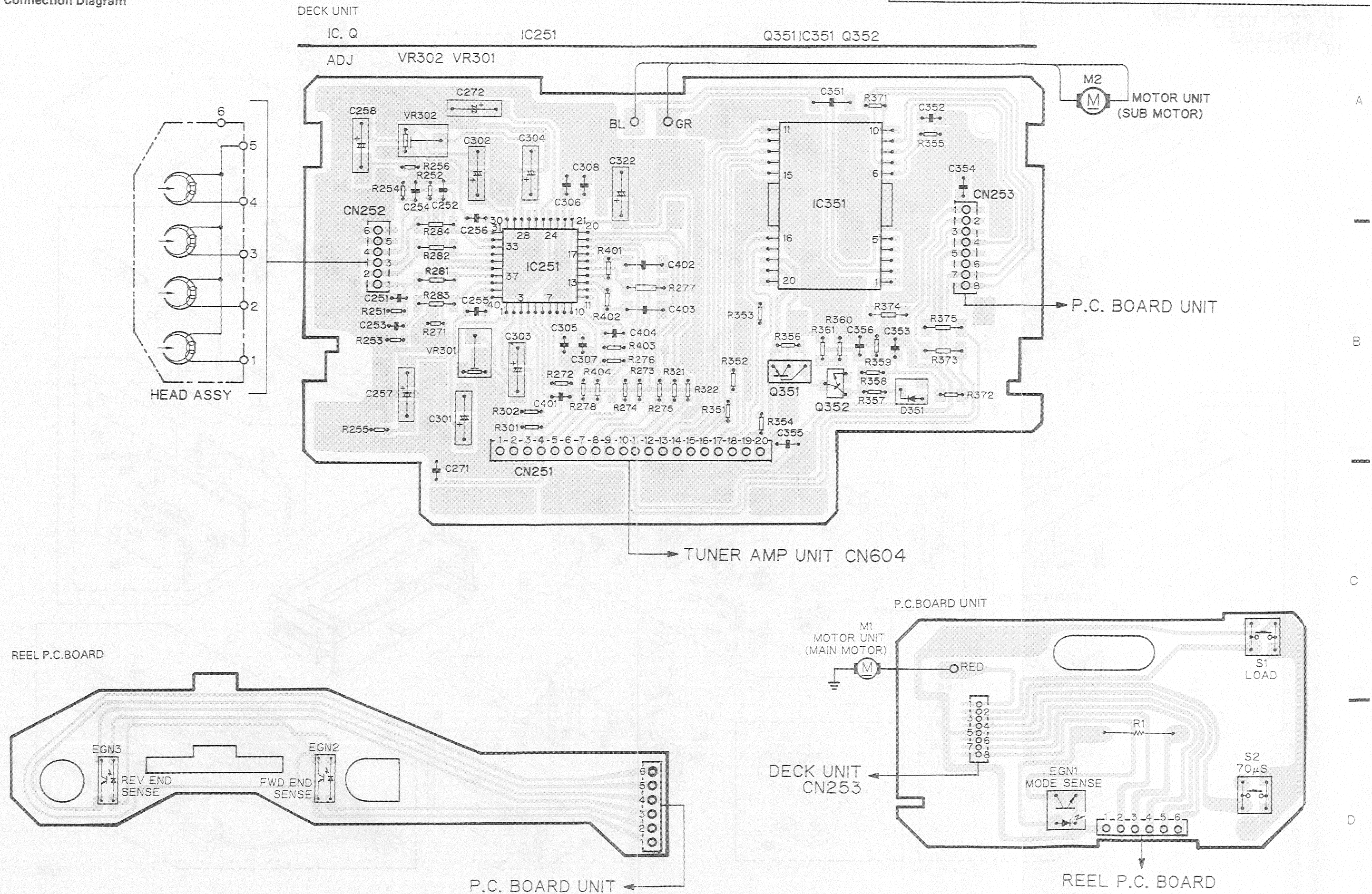
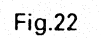


Fig.21



NOTE:

- Parts marked by "※" are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

● Parts List(KEH-P9200RDS/EW)

Mark No.	Description	Part No.	Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ30P040FMC	41	Holder	CNC2218	81	Holder	CNC5358
2	Screw	BSZ26P050FMC	※ 42	Spacer	CNM2158	82	Holder	CNC5432
3	Cord Assy	CDE4648	43	Holder	CNV1906	83	Insulator	CNM4046
4	Fuse	CEK1136	44	Tuner Unit	CWE1356	84	Screw	BSZ30P080FMC
5	Cap	CNS1472	45	Cord	CDE4544	85	Screw	BSZ30P120FMC
6	Case	CNB1831	46	Plug(4P)(CN609)	CKS1224	86	Holder	CNC5490
7	Holder	CNC4946	47	Screw	BPZ20P050FMC	87	Holder	CNC5491
8	Holder	CNC5734	48	Screw(M2×3)	CBA1077	88	Holder	CNC5530
9	Panel	CNS3113	49	Screw(M2×3)	CBA1082	89	Heat Sink	CNR1342
10	Cap	CNV2680	50	Washer	CBF1039	90	Cord	CDE4387
11	Case Assy	CXA7194	51	Spring	CBH1395	91	EL	CEL1424
12	Remote Control Assy	CXA7607	52	Spring	CBH1528	92	Holder	CNC5497
13	.....		53	Spring	CBH1660	93	Film	CNM4349
14	Cassette Mechanism Module	EXK3130	54	Connector(8P)(CN940)	CKS2780	94	Spacer	CNM4359
15	Screw	BSZ30P055FUC	55	Roller	CLA2041	95	Rubber	CNV3967
16	Screw	BSZ30P060FMC	56	Arm	CNC5495	96	Antenna Jack(ANT1)	CKX1010
17	Screw	BSZ30P160FMC	57	Cushion	CNM2247	97	Connector(8P)(CN901)	CKS2733
18	Holder	CNC4963	58	Sheet	CNM4179	98	Resistor	RS1/2P102JL
19	Insulator	CNM4300	59	P.C.Board	CNP3772	99	LCD(LCD901)	CAW1261
20	Tuner Amp Unit	CWM4038	60	Holder	CNV2141	100	Transistor(Q601)	2SD1189
21	Chassis Unit	CXA7163	61	Holder	CNV3964	101	IC(IC604)	PA2024A
22	Screw	BSZ26P050FMC	62	Cover	CNV3965	102	IC(IC551)	PAL003A
23	Holder	CNC5735	63	Damper Unit	CXA7159	103	Lamp(IL601)	CEL1263
24	Holder	CNC5736	64	Holder Unit	CXA7958	104	Cushion	CNM2657
25	Inverter Unit	CWM4219	65	Holder Unit	CXA7161	105	.....
26	Panel Assy	CXA6691	66	Panel Unit	CXA7170			
27	Detach Grille Assy	CXA6701	67	Holder Unit	CXA7793			
28	Cover	CNS3477	68	Screw	BPZ20P080FZK			
29	Cord	CDE4382	69	Button	CAC4062			
30	Antenna Cable	CDH1180	70	Button	CAC4064			
31	Clamper	CEF1005	71	Button	CAC4065			
32	.....		72	Button	CAC4066			
33	Plug(16P)(CN601)	CKM1187	73	Button	CAC4381			
34	Plug(2P)(CN605)	CKS-783	74	Button	CAC4382			
35	Plug(2P)(CN607)	CKS1222	75	Spring	CBH1661			
36	Plug(2P)(CN606)	CKS1236	76	Key Board Unit	CWM4046			
37	Plug(12P)(CN801)	CKS1246	77	Grille Unit	CXA7166			
38	Connector(20P)(CN604)	CKS1730	78	Cover Unit	CXA7172			
39	Connector(9P)(CN603)	CKS2239	79	Plug(11P)(CN2)	CKS1619			
40	Connector(11P)(CN602)	CKS2480	80	Plug(12P)(CN1)	CKS1620			

• The KEH-P9200RDS/X1BEW, KEH-P8200RDS/EW, X1BEW and KEX-P820RDS/EW Parts Lists enumerate the parts which differ from those enumerated in the KEH-P9200RDS/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-P9200RDS/EW Parts List is given on page 65.

Mark No.	Description	Part No.
81	Holder	CNC5358
82	Holder	CNC5432
83	Insulator	CNM4046
84	Screw	BSZ30P080FMC
85	Screw	BSZ30P120FMC
86	Holder	CNC5490
87	Holder	CNC5491
88	Holder	CNC5530
89	Heat Sink	CNR1342
90	Cord	CDE4387
91	EL	CEL1424
92	Holder	CNC5497
93	Film	CNM4349
94	Spacer	CNM4359
95	Rubber	CNV3967
96	Antenna Jack(ANT1)	CKX1010
97	Connector(8P)(CN901)	CKS2733
98	Resistor	RS1/2P102JL
99	LCD(LCD901)	CAW1261
100	Transistor(Q601)	2SD1189
101	IC(IC604)	PA2024A
102	IC(IC551)	PAL003A
103	Lamp(IL601)	CEL1263
104	Cushion	CNM2657
105	.....

Mark No. Description	KEH-P9200RDS/EW	KEH-P8200RDS/EW
	Part No.	Part No.
10 Cap	CNV2680	.....
12 Remote Control Assy	CXA7607	CXA7608
20 Tuner Amp Unit	CWM4038	CWM4042
21 Chassis Unit	CXA7163	CXA7443
27 Detach Grille Assy	CXA6701	CXA6706
29 Cord	CDE4382	CDE4383
44 Tuner Unit	CWE1356	CWE1357
77 Grille Unit	CXA7166	CXA7574
79 Plug	CKS1619(11P)(CN2)	CKS1607(10P)(CN2)
105 Insulator	.....	CNM4445

Mark No. Description	KEH-P9200RDS/EW	KEX-P820RDS/EW
	Part No.	Part No.
3 Cord Assy	CDE4648	CDE4650
4 Fuse	CEK1136	CEK1001
9 Panel	CNS3113	CNS3399
10 Cap	CNV2680	.....
12 Remote Control Assy	CXA7607	CXA7609
14 Cassette Mechanism Module	EXK3130	EXK3170
17 Screw	BSZ30P160FMC	.....
20 Tuner Amp Unit	CWM4038	CWM4279
21 Chassis Unit	CXA7163	CXA7444
26 Panel Assy	CXA6691	CXA6694
27 Detach Grille Assy	CXA6701	CXA6696
28 Cover	CNS3477	CNS3476
29 Cord	CDE4382	CDE4545
44 Tuner Unit	CWE1356	CWE1357
66 Panel Unit	CXA7170	CXA7445
71 Button	CAC4065	CAC4253
76 Key Board Unit	CWM4046	CWM4050
77 Grille Unit	CXA7166	CXA7578
78 Cover Unit	CXA7172	CXA7446
79 Plug	CKS1619(11P)(CN2)	CKS1607(10P)(CN2)
85 Screw	BSZ30P120FMC	.....
88 Holder	CNC5530	.....
89 Heat Sink	CNR1342	.....
99 LCD(LCD901)	CAW1261	CAW1303
102 IC(IC551)	PAL003A	.....
105 Insulator	.....	CNM4445

Mark No. Description	KEH-P9200RDS/EW	KEH-P9200RDS/X1BEV
	Part No.	Part No.
3 Cord Assy	CDE4648	UDE4648

Mark No. Description	KEH-P8200RDS/EW	KEH-P8200RDS/X1BEV
	Part No.	Part No.
3 Cord Assy	CDE4648	UDE4648

10.2 CASSETTE MECHANISM MODULE

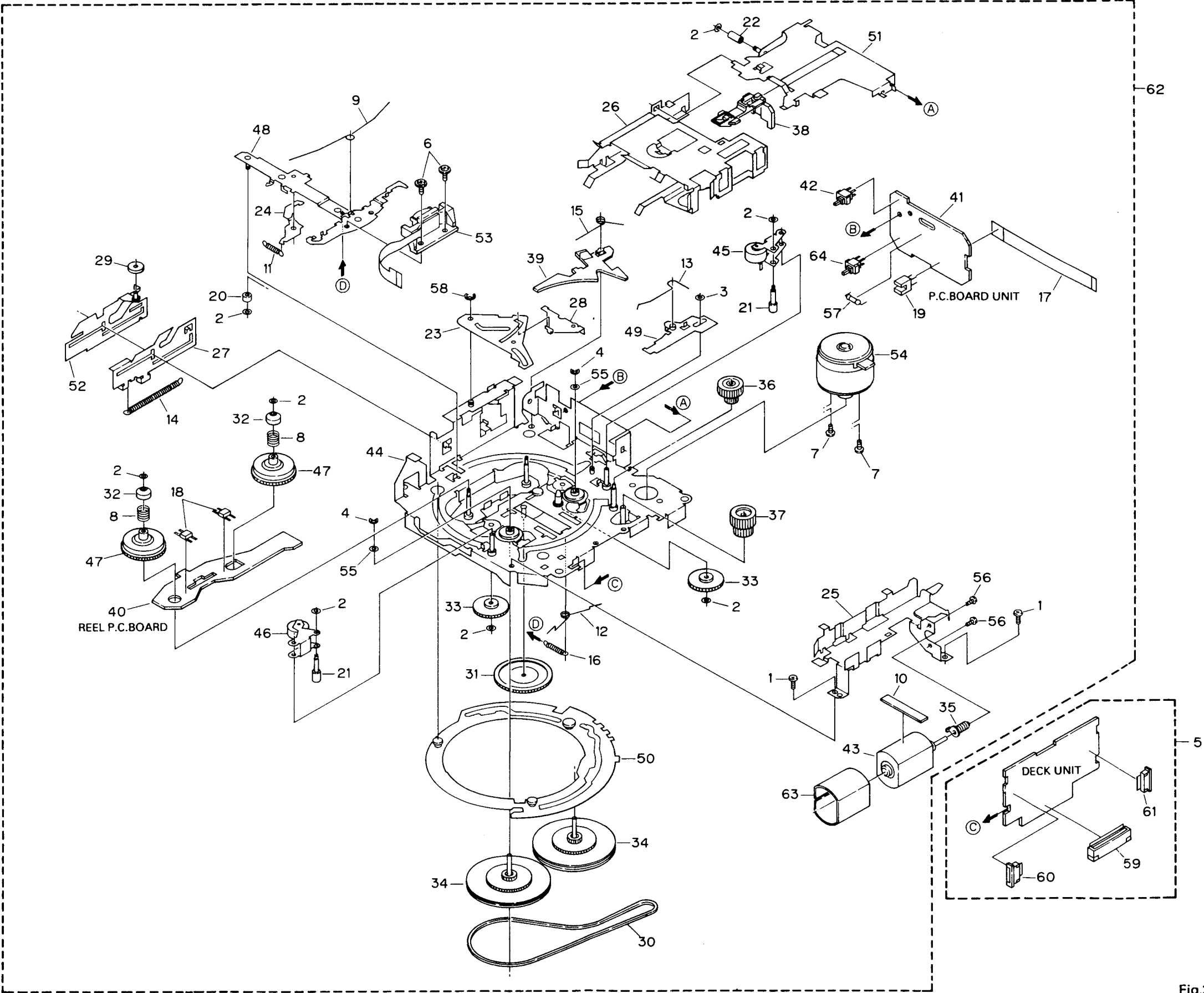


Fig.23

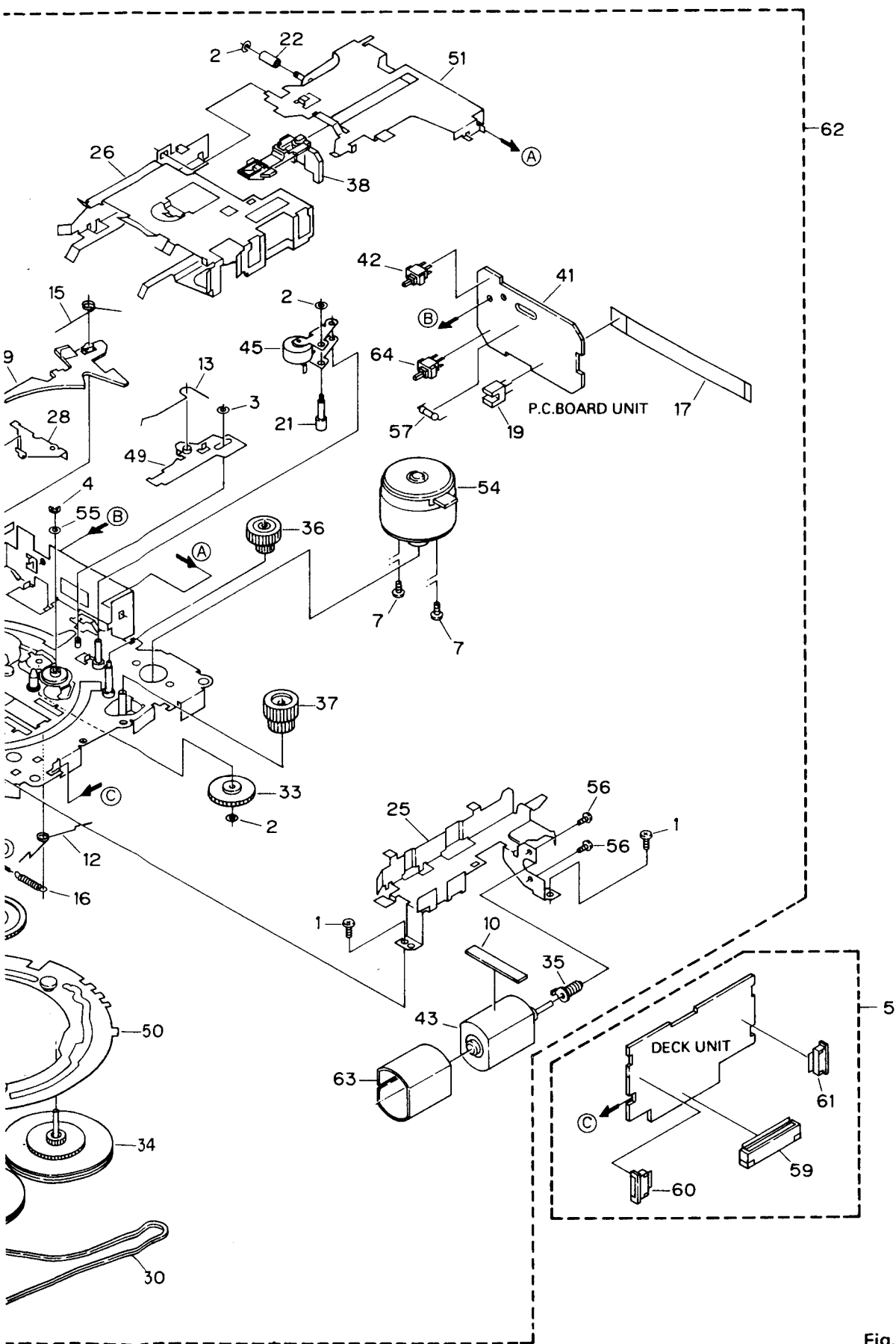


Fig.23

● Parts List(KEH-P9200RDS/EW, X1BEW, KEH-P8200RDS/EW, X1BEW)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
A	1 Screw	BSZ20P040FMC	36 Worm Wheel	ENV1440	
	2 Washer	CBF1037	37 Gear	ENR1028	
	3 Washer	CBF1038	38 Lever	ENV1442	
	4 Washer	CBG1003	39 Arm	ENV1445	
	5 Deck Unit	CWM3953	40 Gathering P.C.Board	ENX1029	
—	6 Screw	EBA1028	41 Gathering P.C.Board	ENX1030	
	7 Screw	EBA1037	42 Switch(S1)	ESG1004	
	8 Spring	EBH1531	43 Motor Unit(M2)	EXA1382	
	9 Spring	EBH1512	44 Chassis Unit	EXA1383	
	10 Cushion	ENM1034	45 Pinch Holder Unit	EXA1384	
—	11 Spring	EBH1515	46 Pinch Holder Unit	EXA1385	
	12 Spring	EBH1516	47 Reel Unit	EXA1386	
	13 Spring	EBH1517	48 Head Base Unit	EXA1387	
	14 Spring	EBH1518	49 Lever Unit	EXA1388	
	15 Spring	EBH1519	50 Gear Unit	EXA1389	
B	16 Spring	EBH1537	51 Frame Unit	EXA1390	
	17 Cord	EDD1015	52 Lever Unit	EXA1391	
	18 Photo-reflector(EGN2,3)	EGN1004	53 Head Assy(HD1)	EXA1404	
	19 Photo-interrupter(EGN1)	EGN1005	54 Motor Unit(M1)	EXA1381	
	20 Roller	ELA1283	55 Washer	HBF-179	
—	21 Shaft	ELA1347	56 Screw	JGZ20P025FNI	
	22 Roller	ELA1348	57 Resistor(R1)	RD1/4HM181J	
	23 Arm	ENC1396	58 Washer	YE20FUC	
	24 Arm	ENC1397	59 Connector(CN251)	CKS1711	
	25 Guide	ENC1398	60 Connector(CN252)	CKS2127	
—	26 Holder	ENC1399	61 Connector(CN253)	CKS2129	
	27 Lever	ENC1400	62 Spare Unit	EXA3003	
	28 Arm	ENC1401	63 Shield	ENC1410	
	29 Roller	ENR1027	64 Switch(S2)	ESG1004	
	30 Belt	ENT1027			
C	31 Gear	ENV1347			
	32 Collar	ENV1349			
	33 Gear	ENV1350			
	34 Flywheel	ENV1410			
	35 Worm Gear	ENV1439			
D					

● **Parts List(KEX-P820RDS/EW)**

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC	36	Worm Wheel	ENV1440
2	Washer	CBF1037	37	Gear	ENR1028
3	Washer	CBF1038	38	Lever	ENV1442
4	Washer	CBG1003	39	Arm	ENV1445
5	Deck Unit	CWM3954	40	Gathering P.C.Board	ENX1029
6	Screw	EBA1028	41	Gathering P.C.Board	ENX1030
7	Screw	EBA1037	42	Switch(S1)	ESG1004
8	Spring	EBH1531	43	Motor Unit(M2)	EXA1382
9	Spring	EBH1512	44	Chassis Unit	EXA1383
10	Cushion	ENM1034	45	Pinch Holder Unit	EXA1384
11	Spring	EBH1515	46	Pinch Holder Unit	EXA1385
12	Spring	EBH1516	47	Reel Unit	EXA1386
13	Spring	EBH1517	48	Head Base Unit	EXA1387
14	Spring	EBH1518	49	Lever Unit	EXA1388
15	Spring	EBH1519	50	Gear Unit	EXA1389
16	Spring	EBH1537	51	Frame Unit	EXA1390
17	Cord	EDD1015	52	Lever Unit	EXA1391
18	Photo-reflector(EGN2,3)	EGN1004	53	Head Assy(HD1)	EXA1398
19	Photo-interrupter(EGN1)	EGN1005	54	Motor Unit(M1)	EXA1381
20	Roller	ELA1283	55	Washer	HBF-179
21	Shaft	ELA1347	56	Screw	JGZ20P025FNI
22	Roller	ELA1348	57	Resistor(R1)	RD1/4HM181J
23	Arm	ENC1396	58	Washer	YE20FUC
24	Arm	ENC1397	59	Connector(CN251)	CKS1711
25	Guide	ENC1398	60	Connector(CN252)	CKS2127
26	Holder	ENC1399	61	Connector(CN253)	CKS2129
27	Lever	ENC1400	62	Spare Unit	EXA3002
28	Arm	ENC1401	63	Shield	ENC1410
29	Roller	ENR1027	64	Switch(S2)	ESG1004
30	Belt	ENT1027			
31	Gear	ENV1347			
32	Collar	ENV1349			
33	Gear	ENV1350			
34	Flywheel	ENV1410			
35	Worm Gear	ENV1439			

11. PACKING METHOD

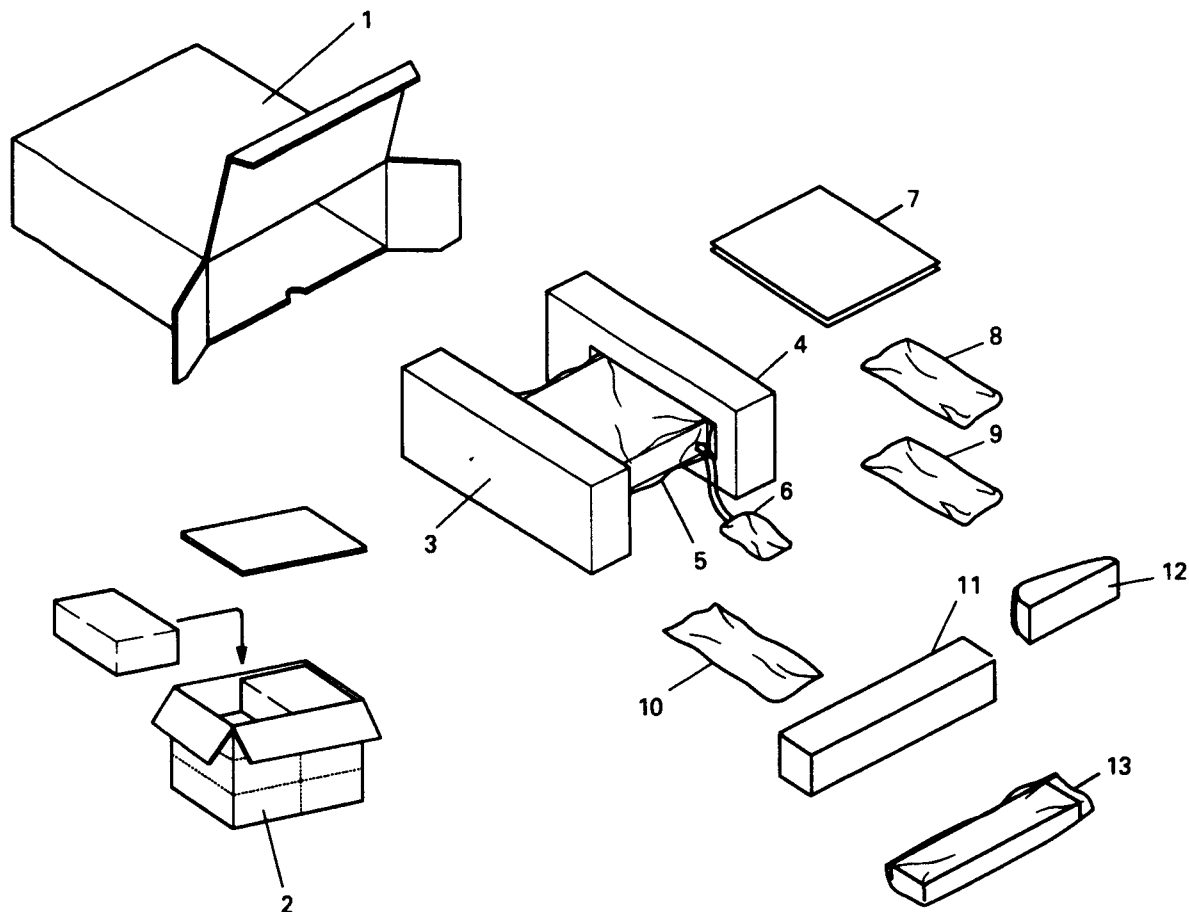


Fig.24

● Parts List(KEH-P9200RDS/EW)

Mark No.	Description	Part No.	Mark No.	Description	* : Non Spare Part Part No.
1	Carton	CHG2575	* 7-5	Passport	CRY1013
2	Contain Box	CHL2575	* 7-6	Warranty Card	CRY1071
3	Protector	CHP1688	8	Accessory Assy	CEA2065
4	Protector	CHP1687	9	Accessory Assy	CEA2081
5	Cover	CEG1092	10	Cord Assy	CDE4648
6	Air Cushioned Bag	CEG1192	11	Spacer	CHW1433
7-1	Owner's Manual	CRD1809	12	Remote Control Assy	CXA7607
7-2	Owner's Manual	CRD1810	13	Case Assy	CXA7194
7-3	Installation Manual	CRD1812			
7-4	Installation Manual	CRD1880			

- The KEH-P9200RDS/X1BEW, KEH-P8200RDS/EW, X1BEW and KEX-P820RDS/EW Parts Lists enumerate the parts which differ from those enumerated in the KEH-P9200RDS/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KEH-P9200RDS/EW Parts List is given on page 72.

Mark No. Description	KEH-P9200RDS/EW Part No.	KEH-P8200RDS/EW Part No.	KEX-P820RDS/EW Part No.
1 Carton	CHG2575	CHG2595	CHG2598
2 Contain Box	CHL2575	CHL2595	CHL2598
7-3 Installation Manual	CRD1812	CRD1881	CRD1816
7-4 Installation Manual	CRD1880	CRD1882	CRD1883
10 Cord Assy	CDE4648	CDE4648	CDE4650
12 Remote Control Assy	CXA7607	CXA7608	CXA7609

Mark No. Description	KEH-P9200RDS/EW Part No.	KEH-P9200RDS/X1BEW Part No.	KEH-P8200RDS/X1BEW Part No.
1 Carton	CHG2575	UHG2575	UHG2595
2 Contain Box	CHL2575	UHD-002	UHD-002
3 Protector	CHP1688	UHP-009	UHP-009
4 Protector	CHP1687	.....	.....
5 Cover	CEG1092	.....	.....
Polyethylene Bag	.....	UEG-002	UEG-002
7-1 Owner's Manual	CRD1809	URD1809	URD1809
7-2 Owner's Manual	CRD1810	.....	.....
7-3 Installation Manual	CRD1812	URD1812	URD1881
7-4 Installation Manual	CRD1880	.....	.....
* 7-5 Passport	CRY1013	CRY1014	CRY1014
* 7-6 Warranty Card	CRY1071	.....	.....
* Card	.....	URY-001	URY-001
8 Accessory Assy	CEA2065	UEA2065	UEA2065
9 Accessory Assy	CEA2081	UEA2081	UEA2081
10 Cord Assy	CDE4648	UDE4648	UDE4648
11 Spacer	CHW1433	.....	.....
12 Remote Control Assy	CXA7607	CXA7607	CXA7608
Air Cushioned Bag	.....	UEG-007	UEG-007

● Owner's Manual

● Installation Manual

Model	Part No.	Language
KEH-P9200RDS/EW	CRD1809	English, Italian, French, German, Dutch, Spanish
KEH-P8200RDS/EW	CRD1810	Finnish, Norwegian, Swedish
KEX-P820RDS/EW		
KEH-P9200RDS/EW	CRD1812	English, Italian, French, German, Dutch, Spanish
	CRD1880	Finnish, Norwegian, Swedish
KEH-P8200RDS/EW	CRD1881	English, Italian, French, German, Dutch, Spanish
	CRD1882	Finnish, Norwegian, Swedish
KEX-P820RDS/EW	CRD1816	English, Italian, French, German, Dutch, Spanish
	CRD1883	Finnish, Norwegian, Swedish
KEH-P9200RDS/X1BEW	URD1809	English, Italian, French, German, Dutch, Spanish
KEH-P8200RDS/X1BEW		
KEH-P9200RDS/X1BEW	URD1812	English, Italian, French, German, Dutch, Spanish
KEH-P8200RDS/X1BEW	URD1881	English, Italian, French, German, Dutch, Spanish

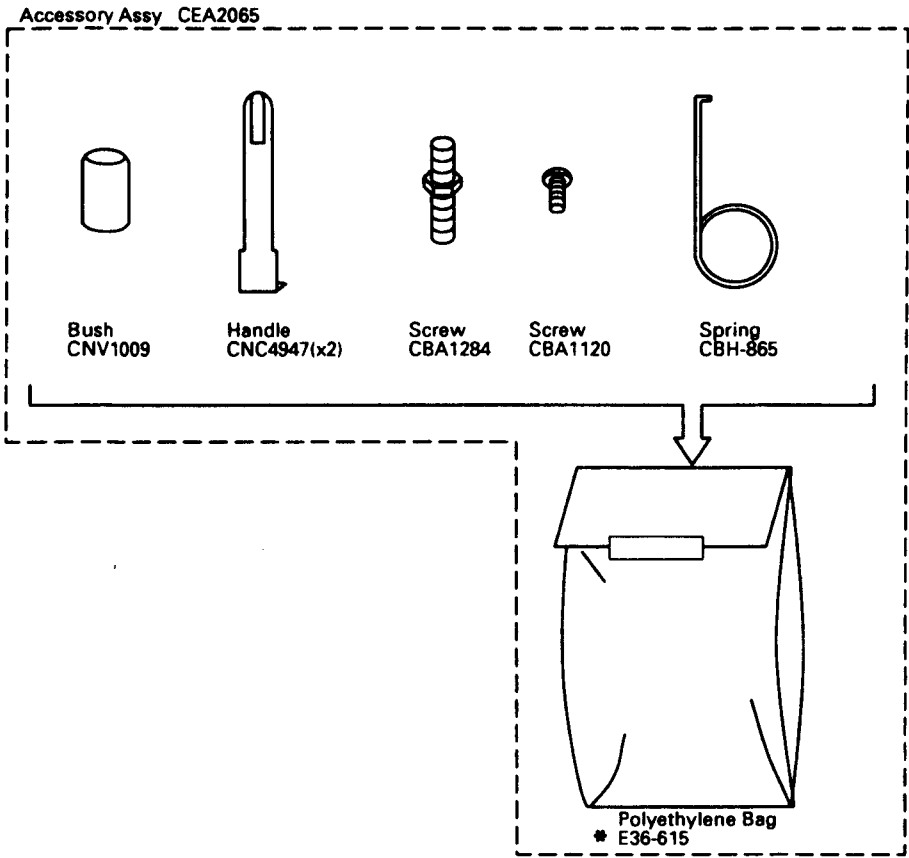


Fig.25

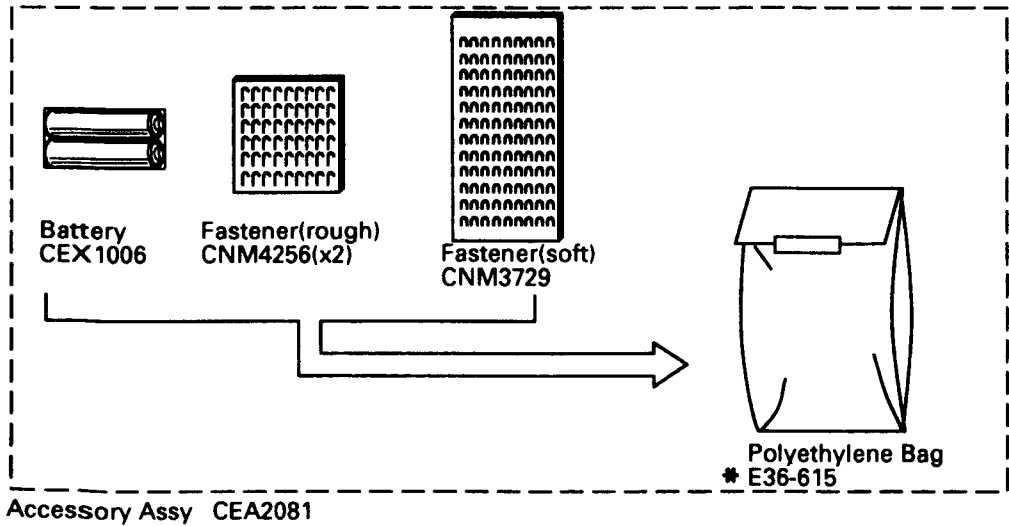


Fig.26

12. SPECIFICATIONS

General

Power source	14.4 V DC (10.8 — 15.6 V allowable)
Grounding system	Negative type
Max. current consumption (KEH-P9200RDS, KEH-P8200RDS)	8.0 A
(KEX-P820RDS)	1.0 A
Dimensions (chassis)	178 (W) × 50 (H) × 150 (D) mm
(front face)	188 (W) × 58 (H) × 16 (D) mm
Weight (KEH-P9200RDS, KEH-P8200RDS)	1.4 kg
(KEX-P820RDS)	1.2 kg

Amplifier (KEH-P8200RDS, KEH-P8200RDS)

Maximum power output	35 W × 4 (EIAJ)
Continuous power output	22 W × 4 (DIN45324, +B = 14.4 V)
Load impedance	4 Ω (4 — 8 Ω allowable)
Preout output level/output impedance	500 mV/ 1 kΩ
Tone controls (bass)	±12 dB (100 Hz)
(treble)	±12 dB (10 kHz)
Loudness contour	+10 dB (100 Hz), +7 dB (10 kHz) (Volume: -30 dB)

Amplifier (KEX-P820RDS)

Preout output level/output impedance	500 mV/ 1 kΩ
Tone controls (bass)	±12 dB (100 Hz)
(treble)	±12 dB (10 kHz)
Loudness contour	+10 dB (100Hz), +7 dB (10 kHz) (Volume: -30 dB)

Subwoofer

Crossover frequency	50 Hz/ 80 Hz/ 125 Hz
Crossover slope	-12 dB/oct

Tape player

Tape	Compact cassette tape (C-30 — C-90)
Tape speed	4.76 cm/sec. (+0.14 cm/sec., -0.05 cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.09 % (WRMS)
Frequency response (KEH-P9200RDS, KEH-P8200RDS)	Metal: 30 — 19,000 Hz (±3 dB)
(KEX-P820RDS)	Metal: 25 — 22,000 Hz (±3 dB)

Stereo separation

(KEH-P9200RDS, KEH-P8200RDS)	45 dB
(KEX-P820RDS)	50 dB
Signal-to-noise ratio	Metal: Dolby C NR IN: 73 dB (IEC-A network)
	Metal: Dolby B NR IN: 67 dB (IEC-A network)
	Metal: Dolby NR OUT: 61 dB (IEC-A network)

FM tuner (KEH-P9200RDS)

Frequency range	87.5 — 108 MHz
Usable sensitivity	DYNAS ON: 7 dBf (0.7 μV/ 75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	DYNAS ON: 13 dBf (1.2 μV/ 75 Ω, mono)
Signal-to-noise ratio	DYNAS ON: 67 dB (network)
Distortion	0.3 % (at 65 dBf, 1 kHz stereo)
Frequency response	25 — 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

FM tuner (KEH-P8200RDS, KEX-P820RDS)

Frequency range	87.5 — 108 MHz
Usable sensitivity	8 dBf (0.7 μV/ 75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	13 dBf (1.2 μV/ 75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3 % (at 65 dBf, 1 kHz stereo)
Frequency response	25 — 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range	531 — 1602 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)

LW tuner

Frequency range	153 — 281 kHz
Usable sensitivity	30 μV (30 dB) (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

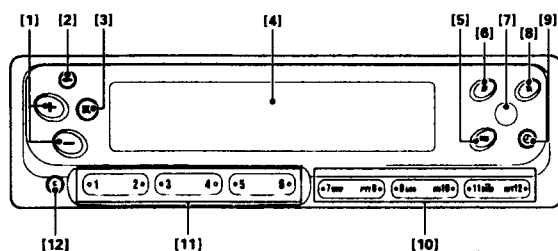


Fig. 27

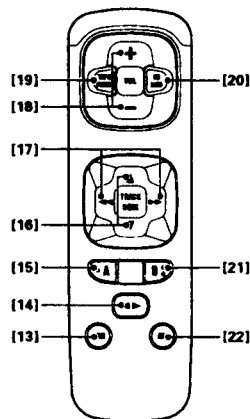


Fig. 28

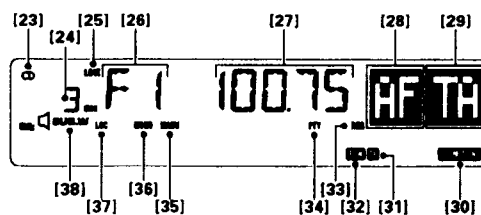


Fig. 29

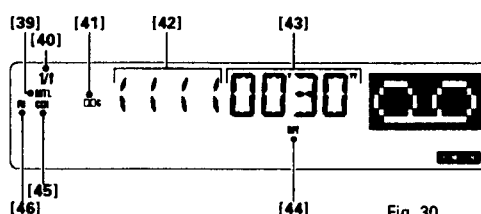


Fig. 30

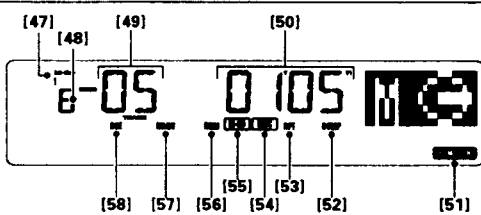


Fig. 31

Precautions

Organization of this Manual

This is the Owner's Manual for the KEH-P9200RDS, KEH-P8200RDS, and KEX-P820RDS. The KEH-P8200RDS and KEX-P820RDS differ from the KEH-P9200RDS as follows.

KEH-P8200RDS

- This is not a DYNAS tuner. (It has no DYNAS function.)
- There is no amplifier input terminal. (When a DSP or an Equalizer is connected, the speaker cannot be connected to the internal amplifier in this unit. A separately sold amplifier is required.)

KEX-P820RDS

- This is not a DYNAS tuner. (It has no DYNAS function.)
- There is no internal amplifier. A separately sold amplifier is required.

Note to Customers Using this Unit in Combination with the "DEQ-P800" Hideaway DSP

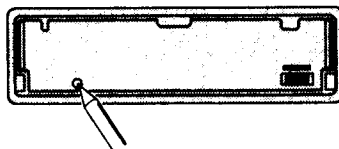
This manual does not describe operating procedures for combined use with the "DEQ-P800" Hideaway DSP. Please refer to the Hideaway DSP Owner's Manual for DSP operating details.

Using the Clear Button

Pressing the Clear button will reset the microprocessor. Press the Clear button in the following cases:

- When using the unit for the first time after connecting it.
- When there is a misoperation.
- When the display indicates a misoperation.

Remove the front panel and use the tip of a pen, etc., to press the Clear button. (To remove the front panel, refer to "Detaching the Front Panel".)



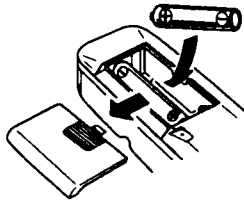
Using the Remote Controller

Parts Identification

Fig. 27
[7] Remote Controller Sensor

Fig. 28
[21] DSP

Inserting the Batteries



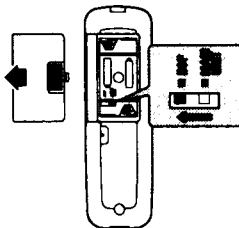
Precautions

- Do not place the remote control unit in high temperatures or in direct sunlight.
- Install the batteries in the proper direction.
- Use only UM-4, AAA, or IEC R03 1.5 V batteries.
- Do not mix old and new batteries.
- The batteries provided with the unit are not rechargeable. Therefore do not recharge them.
- If the remote control unit is not to be used for more than a month, remove the batteries.

- If there is battery leakage, wipe the leakage completely and install new batteries.
- Hold the remote controller with your hand and point it toward the remote controller sensor [7] when performing an operation.
- It is extremely dangerous if the remote controller should fall to the floor and become lodged under the brake pedal when braking or cornering. When you are not using the remote controller, always keep it in place with the Velcro tape provided.
- It may not be possible to perform remote control operations if the remote controller sensor [7] is exposed to direct sunlight.
- Button [21] is for use of the unit in combination with a DSP.

Note to Customers Using this Unit in Combination with a DSP except for the "DEQ-P800" Hideaway DSP

When using this unit in combination with a DSP except for the "DEQ-P800" Hideaway DSP, first set the switch on the rear of the remote controller to the DSP position, using the tip of a pen, etc. The system will not work properly unless this is done.



Using the Removable Front Panel

Parts Identification

Fig. 27
[2] Open
[4] Front Panel
[11] ③ Warning Buzzer ON/OFF

Function

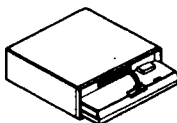
To prevent theft, the front panel is detachable. Also, if the front panel is not detached within 5 seconds after the car's ignition is turned off, a warning beep tone will sound to remind you to detach the front panel.

Canceling the Warning Beep Tone

The warning beep tone function can be canceled. While pressing button ③ to bank [11], turn the ignition key from OFF to ON. To turn ON the warning beep tone function again, repeat this operation.

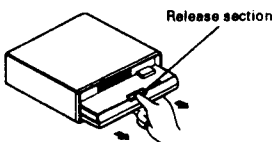
Detaching the Front Panel

1. Press button [2], and the front panel [4] will open.



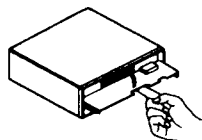
2. Grip the release section and pull the front panel forward.

- Take care not to grip the front panel display tightly, or to drop the panel.

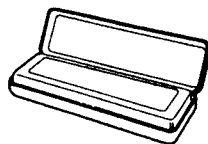


3. Close the inner cover.

- After detaching the front panel, be sure to close the inner cover to prevent dirt, dust or other foreign matter from entering the cassette slot.

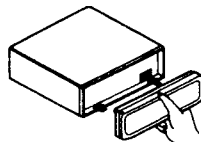


4. Keep the detached front panel in the protective case provided.



Fitting the Front Panel

- Check that the inner cover is closed.
 - Press the front panel onto the body of the unit.
- Take care not to press any buttons or the display while doing this.

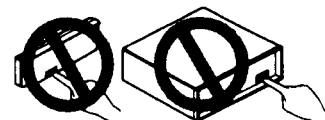


Precautions

- Do not use unnecessary force in detaching the front panel.



- Do not hold the display tightly.
- Do not subject the front panel to excessive shock.
- Do not place the front panel in high temperatures or direct sunlight.
- Do not use benzene, paint thinner, or other volatile fluids to clean the front panel.
- Do not disassemble the front panel.
- Do not touch the terminals on the front panel and unit. (If the terminals are dirty, use a clean dry cloth to clean.)



Switching the Source

Parts Identification

Fig. 27

[3] Source Switching
[10] ⑦ AUX ON/OFF

Fig. 28

[19] Source Switching (Tape Deck, Tuner)
[20] Source Switching (Multi-CD Player)

Switching the Source on the Main Unit

Each time button [3] is pressed, the source changes in the following sequence:
Tape deck → Tuner → Multi-CD player → OFF

Switching the Source Using the Remote Controller

Each time button [19] is pressed, the source changes in the following sequence:
Tape deck → Tuner → OFF
Each time button [20] is pressed, the source changes in the following sequence:
Multi-CD player → OFF

- The source will not be switched to the tape deck if there is no cassette tape in the deck.
- The source will not be switched to the multi-CD player if a multi-CD player is not connected, or if a magazine is not loaded in the player.

When connecting other audio equipment to the IP-BUS terminal of the main unit using the separately sold conversion cord.

When listening to the audio equipment, carry out the following operations to switch to AUX mode.

1. While pressing ⑦ of button [10], turn the ignition key from OFF to ON.
 2. Switching sources allows selection of AUX mode. Therefore, press button [3] to switch to AUX mode.
Tape → Tuner → Multi-CD player → AUX → OFF
- When performing an operation with the remote controller, the mode is not switched to AUX.

Switching the Display

Parts Identification

Fig. 27

[5] Display Switching

Fig. 29

[28], [29] Message Displays

Switching the Message Display

Displays [28] and [29] change as follows each time button [5] is pressed:
Source and mode symbol → AF/TA indicator → Signal indicator

When the Unit is Used in Combination with the "DEQ-P800" Hideaway DSP

When the unit is used in combination with the "DEQ-P800" Hideaway DSP, display [28] and [29] change as follows each time button [5] is pressed:

Source and mode symbol → AF/TA indicator → Signal indicator → SFC* symbol → Equalizer curve

*SFC: Sound Field Control

- Display [28] and [29] are useful for checking the SFC and equalizer curve settings.

Making Audio Adjustments

Parts Identification

Fig. 27

[1] Volume

Fig. 28

[15] Shift/SLA
[16], [17] Audio Adjustment
[18] Volume
[22] Attenuator

Fig. 29

[25] Loudness
[38] Sub-woofer

Mode Switching

Each time button [15] is pressed, the mode changes in the following sequence:
Volume adjustment (VOL) → Balance adjustment (FAD/BAL) → Tone adjustment (BAS/TRE) → Sub-woofer (SUB.W) → Loudness adjustment (LOUD)

- When a fader, balance, or bass/treble adjustment is made, the adjustment stops temporarily at the center position. The display changes back to its previous state approximately 8 seconds after an adjustment is made.

When the Unit is Used in Combination with the "DEQ-P800" Hideaway DSP

When the unit is used in combination with the "DEQ-P800" Hideaway DSP, the mode changes in the following sequence each time button [15] is pressed:

Volume adjustment (VOL) → Balance adjustment (FAD/BAL) → Automatic volume adjustment (ASL) → Sub-woofer (SUB.W) → Loudness adjustment (LOUD)

- The mode will not be switched to Tone adjustment.
- Please refer to the Hideaway DSP Owner's Manual for the use of automatic volume adjustment (ASL).

Adjusting the Volume

The volume is increased by pressing the (+) side of button [1] or [18], and decreased by pressing the (-) side. (Display shows "VOL 00" ~ "VOL 30".)

- When driving, the volume should be adjusted to a level that allows sounds outside the vehicle to be heard.

Adjusting the Balance

Press button [15] to select the balance adjustment mode ("FAD" lights). Fader adjustments are made using the ▲ or ▼ side of button [16]. To adjust the balance, press either the ◀ or ▶ side of button [17] to display "BAL", then make the adjustment with the ◀ or ▶ side of the button.

Fader

The balance is gradually changed to front speaker sound only, by pressing the ▲ side of button [16], and to rear speaker sound only, by pressing the ▼ side. (Display shows "FAD F9" ~ "FAD R9".)

- When a two-speaker system is used, you should set "FAD 0".

Balance

The balance is gradually changed to left speaker sound only, by pressing the ◀ side of button [17], and to right speaker sound only, by pressing the ▶ side. (Display shows "BAL L9" ~ "BAL R9".)

Adjusting the Tone

Press button [15] to select the tone adjustment mode ("BAS" lights). Use the the ◀ or ▶ side of button [17] to select the tone you want to adjust. Pressing the ◀ side selects BAS, and pressing the ▶ side selects TRE.

Bass Adjustment

Select the bass adjustment mode. Bass intensity is gradually increased by pressing the ▲ side of button [16], and decreased by pressing the ▼ side. (Display shows "BAS -6" ~ "BAS +6".)

Treble Adjustment

Select the treble adjustment mode. Treble intensity is gradually increased by pressing the ▲ side of button [16], and decreased by pressing the ▼ side. (Display shows "TRE -6" ~ "TRE +6".)

Sub-woofer

When a sub-woofer is used with the unit, the sub-woofer setting should first be switched to ON.

Using the Sub-woofer Function

1. Press button [15] repeatedly to change to the sub-woofer mode ("80Hz 0" is displayed).
2. When button [15] is pressed for 2 seconds or more, "SUB.W" [38] lights, and the sub-woofer setting changes to ON.
3. To cancel the sub-woofer function, press button [15] repeatedly to change to the sub-woofer mode, and press button [15] for 2 seconds or more while the sub-woofer display is shown.

Adjusting the Frequency and Output Level

1. Press button [15] repeatedly to change to the sub-woofer mode.
2. Adjust the frequency and output level adjustment while the sub-woofer display is shown. Press the ◀ or ▶ side of button [17] to adjust the frequency, and press the ▲ or ▼ side of button [16] to adjust the output level. The frequency can be set to 50 Hz, 80 Hz, or 125 Hz, and an output level can be selected in the range from -6 to +6.

Adjusting the Loudness

The loudness function compensates for deficiencies in the low and high sound ranges when listening to the unit at low volume.

1. Press button [15] to select the loudness adjustment mode (display shows "LOUD OFF").
2. Pressing button [15] for 2 seconds or more turns the loudness function ON ("LOUD" [25] lights). To cancel the loudness function, press button [15] again for 2 seconds or more ("LOUD" [25] goes off).

Using the Source Level Adjuster

This function compensates for the difference in volume when the source is switched.

- Compensation is performed on the basis of the FM volume, and therefore the FM volume cannot be adjusted.
1. Check the FM volume.
 2. Switch to the source you want to adjust, and check the difference in volume between that source and FM.
 3. Press button [15] for 2 seconds or more to change to the SLA mode. The current level, "V 0", is displayed.
 4. Adjust the volume level by pressing the ▲ or ▼ side of button [16]. (Display shows "V -4" ~ "V +4".)

Attenuator

Pressing button [22] reduces the volume by approximately 90% ("ATT" flashes). The original volume is restored by pressing the button once again.

Using the Tuner

Parts Identification

Fig. 27

- [3] Source Switching
- [6] AF
- [8] TA
- [10], [11] Preset
- [10] Functions
 - ⑦ PTY Display Switching
 - ⑧ PTY Seek/PTY Setting
 - ⑨ Local Mode/Local Sensitivity
 - ⑩ DYNAS (KEH-P9200RDS)
 - ⑪ Preset Scan/BSM
 - ⑫ FM Monaural/Seek, Manual Switching
- [12] Function Switching

Fig. 28

- [14] Band
- [16] Preset Tuning
- [17] Tuning
- [19] Source Switching

Fig. 29

- [23] FM Stereo
- [24] Preset Number
- [26] Band
- [27] Frequency
- [28] AF
- [29] TA
- [30] Function
- [31] TP
- [32] EON
- [33] REG
- [34] PTY
- [35] Manual
- [36] FM Monaural
- [37] Local Mode

Function Switching

Button [10] has two functions. It switches FM monaural, BSM, etc. ON and OFF, and it also serves as the preset button for the FM1 band. Press button [12] to switch the function as desired.

Functions ON ([30] lit)

To use the buttons in bank [10] with functions such as FM monaural and BSM, set functions ON.

Functions OFF ([30] off)

Leave the functions OFF when using button [10] as the preset button for the FM1 band.

Listening to the Radio

Electronic Tuner

Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocations for Western Europe, Asia, the Middle and Near East, Africa, Australia and Oceania. Use in other areas may result in improper reception of AM. The RDS function does not work in regions with no RDS broadcast services.

1. Press button [3] or [19] to switch the source to the tuner.
2. Press button [14] to select the band. The band changes each time the button is pressed as follows:
 - FM1 → FM2 → MW/LW
 - MW and LW together comprise one band.
3. Select a station using manual tuning or seek tuning.

- 3-1. Pressing button ⊕ of bank [10] for 2 seconds or more switches between seek and manual tuning alternately. When manual tuning is selected, "MANU" [35] lights.

- 3-2. Tune by pressing the ◀ or ▶ side of button [17]. (When a stereo station is tuned in, "⊕" [23] lights.)

- When the function is OFF, switching between seek and manual tuning can not be done in FM1 stations. Press button [12] to turn the function ON.

Seek Tuning

When the button is pressed, a station with a signal of a given strength or greater is tuned in automatically.

Manual Tuning

When the button is pressed, the frequency changes step by step.

Preset Memory

The radio stations can be stored in memory under buttons 1 to 6 of [11].

- FM1 bands can be stored in the memory of button [10] (7 to 12). Leave the function OFF when storing memory into button [10].
1. Tune in to the station to be stored in memory.
 2. Store the station in memory by pressing one of the buttons (1 to 6) for at least 2 seconds. When the [24] number stops blinking and there is a beep, the station will be stored in memory under the button pressed.
 - Up to 18 FM stations (12 stations on FM1 and 6 stations on FM2) and 6 MW/LW stations can be stored in memory.

Preset Tuning

The radio stations stored in memory can be recalled by pressing the respective button 1 to 6 of [11]. The station stored under that button will be recalled. (The number of the button pressed will be displayed at [24].)

- The FM1 band can recall broadcast stations stored in the memory of button [10]. Set functions OFF before recalling a station memorized in one of the buttons in bank [10].
- When using the remote controller, a station memorized in a button in bank [10] or [11] can be recalled by pressing the ▲ or ▼ side of button [16].

Note:

When using a button in bank [10] in the operations in the following sections, turn functions ON first.

BSM (Best Stations Memory)

- The radio stations having a strong signal can be tuned automatically and stored in memory under buttons 1 to 6 of [11]. Press ⑤ of button [10] for at least 2 seconds. (The "BSM" will blink.) After "BSM" stops blinking, the stations will be stored in memory under buttons 1 to 6 of [11].
- The FM1 band can also be stored in the memory of button [10].
 - BSM can be canceled mid-operation by pressing ⑤ of button [10].

- The stations will be stored under buttons 1 to 6 in the order of their signal strength. The strongest station will be stored under button 1, followed by stations with lower signal strengths.
- If there are fewer than 6 stations whose signal is strong, there will be spare memory.
- It will take almost 30 seconds for BSM to be completed.

Preset Scan Tuning

This recalls in sequence all the stations stored in memory under the buttons [11] for 8 seconds each. Press ⑤ of button [10]. (The [24] number will blink.) To cancel, press the button again. After the desired station is tuned, cancel the preset scan tuning. The station will then continue to be received.

- Stations stored in memory under the buttons [11] but whose signal is weak will not be recalled.
- The FM1 band can recall broadcasting stations stored in the memory of button [10].

Local Seek Tuning

When the local mode is selected, seek tuning sensitivity changes and only stations with a stronger signal than in the case of normal seek tuning are tuned to. The local mode sensitivity can also be adjusted.

To Select Local Mode

Press button ⑤ of bank [10]. ("LOC" [37] lights.) To cancel local mode, press the button once again.

Adjusting Local Seek Sensitivity

The sensitivity can be adjusted in 4 steps for FM and 2 steps for MW/LW.

- LOC-4 tunes in only the stations with the strongest signals, and LOC-3, LOC-2, and LOC-1 tune in stations with progressively weaker signals.
- 1. Select the local seek sensitivity adjustment mode. Press button ⑤ of bank [10] for 2 seconds or more. (The current sensitivity is displayed.)
- The local seek sensitivity adjustment mode is canceled after approximately 5 seconds.
- 2. Press the ◀ or ▶ side of button [17] to adjust the sensitivity.

FM Monaural Reception

If the noise in a stereo broadcast is distracting, you can reduce the noise by switching to monaural reception. Press button ⑤ of bank [10]. ("MONO" [36] lights.) To cancel monaural reception, press the button once again.

DYNAS Function (KEH-P9200RDS)

If the FM broadcast being received is not clear because of interference from another station, interference from other stations can be prevented by turning on the DYNAS function.

Pressing button ⑤ of bank [10] for 2 seconds or more switches the DYNAS function ON and OFF alternately.

Using the RDS Function

What is RDS?

RDS (Radio Data System) according to a CENELEC EN50067 is a system for transmitting data signals from FM broadcast transmitter along with the normal sound program. These data signals, which are imperceptible to listeners, are intended to aid radio listeners in tuning their receivers to a desired station. RDS receivers can decode these data signals for display or control purposes.

RDS digital signal includes various data, such as PI, PS, AF, TP, TA, EON and PTY.

- PI Program Identification Code
- PS Program Service Name
- AF List of Alternative Frequencies
- TP Traffic Program Identification Code (Similar to SK signal of ARI system)
- TA Traffic Announcement Code (Similar to DK signal of ARI system)
- EON Enhanced Other Network Information Code. (In some countries, EON is not offered by broadcasters.)
- PTY Program type ID code

RDS Function of this Unit

This unit has the following functions for making use of RDS data.

- PS, the name of the currently listened station is displayed.
- AF (Alternative Frequency) function. This enables the receiver to automatically retune to more suitable frequencies transmitting the same program.

- TP/TA, EON, user selectable reception of the traffic information service, offered by RDS.
- The PTY code permits automatic reception of the broadcast having the same type of program.

Network/Station Name Display

Switch the tuner on and choose one of the 2 FM bands.

When you tune into an RDS station with manual or seek tuning, the frequency display changes to the network/station name display after a few seconds by means of the PS code.

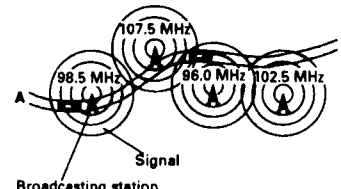
- The RDS functions of this unit use RDS codes transmitted along with FM broadcasts. RDS doesn't work on the MW or LW bands.
- The RDS functions may not work properly in areas where the RDS transmissions are at an experimental stage or where there are flaws in the broadcasting system.
- Hold down button ⑦ of Bank [10] for more than 2 seconds to change the network/station name display to a frequency display. The frequency will be displayed only while the button is being held down.

AF Function

This receiver retunes automatically to a more suitable transmitter, contained in the list of Alternative Frequencies (AF), to enable the motorist to keep listening to programs in the same network.

Example:

If a motorist travels as shown below, from point A to point B, (and has selected AF function) then the receiver will automatically retune to a more suitable frequency transmitting the same program. This is shown by the automatic retuning from 98.5 MHz to 107.5 MHz to 96.0 MHz to 102.5 MHz.



To activate the Alternative Frequency Function, press button [6], "AF" [28] will appear on the display. Once tuned to a RDS station, as long as you drive within an area served by the same network, the receiver will automatically retune to a more suitable station transmitting the same program, by utilizing the data in the AF list.

- "PI SEEK" will appear on the display, if the AF function has been selected, and a suitable AF station cannot be found. In this case, the receiver will mute the radio sound and search the frequency band, in order to find a station with the same PI code. The receiver will return to the original frequency if the same or related PI code cannot be found.
- The AF function will not work in the following cases:

- when the receiver is tuned to a non-RDS station. (local station)
 - when the RDS station does not transmit any AF list data.
 - when the receiver cannot receive the AF list due to disturbances.
- When the receiver is unable to find a PI code, the box of "AF" [28] will start rotating.
- Thus indicating that the AF function cannot be performed.

Preset Recall

- When recalling preset stations in the AF mode, the tuner will be tuned to the stored frequency and the AF function will be operative i.e. when the signal of the recalled station is weak or has a different PI, the radio will look into the AF list and if necessary start a PI seek in order to find a station with the same or related PI code. When the tuner is performing a PI seek "PI SEEK" is shown on the display. If the PI seek is successful, the tuner will be tuned to the new frequency that transmits the same program service (i.e. with the same PI code) and the display will show the stored PS.
- If the PI seek is not successful, the tuner will return to the stored frequency. If a new station (with a different PI code) would be received on this frequency, this station will become audible.
- When recalling preset stations in the AF=OFF mode, the tuner will be tuned to the stored frequency and the display will show the stored PS. In case the tuned station has a PI code that is different from the stored one, the tuner will accept the

new PI code and stay tuned to the initial frequency. The display will show the new PS when the signal of the tuned station is strong enough.

Listening to Regional Stations

In some countries a particular program service may "opt out" during a certain part of the day in several regional variants at particular locations. Since these regional variants are broadcasting a different program they temporarily have a PI and a PS that is different from the main program service. The PI's are mostly "generically linked". The AF list may either be common for all regional variants or each regional variant may have its own AF list. In other countries there may be regional stations which are not an "opt out" of a particular main program service but which have an independent existence. These regional stations all have a different PS. Their PI's may be "generically linked" and their AF lists may carry frequencies which are alternatives for that regional station only.

1)Regional OFF Mode

When AF is ON and REG is OFF, the receiver will switch automatically to regional stations that are likely to be broadcasting the same program but which do not necessarily match the region code. If this results in repeated reception of undesired different program contents, switch to the REG ON mode.

2)Regional ON Mode

When AF is ON and REG is ON, the receiver will switch automatically only to regional stations that precisely match the region code and are therefore definitely broadcasting the same program.

REG ON/OFF

To put the radio in the REG ON mode, press button [8] for more than 2 seconds. "REG" [33] will appear on the display. To cancel the REG ON mode i.e. to put the radio back in the default REG OFF mode, press button [8] again. "REG" [33] will disappear from the display.

PTY Function

This unit's PTY function uses the PTY codes put out by the RDS station to provide three functions: PTY Display, PTY Seek, and PTY Alarm.

- PTY Display is a function that shows the program type of a received station if the broadcast station is an RDS station and is putting out a PTY code.
- PTY Seek is a function that receives RDS stations broadcasting the program type that the user has selected beforehand.
- PTY Alarm is a function that receives an RDS station after picking up an emergency PTY alarm code put out by that station when a natural disaster or nuclear accident, etc., has occurred.

PTY Indication switching

When an RDS station is received, the network/station name display appears. At this point, if the unit has picked up the PTY code, press [10] the [7] button, and PTY (program type) will be displayed for 8 seconds.

- PTY display contents are of the following 16 types: NO PTY, AFFAIRS, CLASSICS, CULTURE, DRAMA, EASY MUS, EDUCATE, INFO, L.CLASS, NEWS, OTH MUS, POP MUS, ROCK MUS, SCIENCE, SPORT, VARIED
- Some stations may broadcast program contents that differ from the PTY code.
- "NO PTY" is displayed when no PTY code can be picked up from the received station.

Setting the program type

1. Press and hold down [10] the [7] button for at least 2 seconds to switch to the PTY setting mode. ("PTY" [34] will light and the program types will be shown on the display for about 5 seconds.)
2. While the program types are shown on the display, press the [◀] side or [▶] side of the [17] button to select the type that you want.

Note:

In the CURRENT mode, if the currently received station is an RDS station and the PTY code has already been picked up, then the program type is automatically set to match that station's PTY code.

PTY Seek

For automatic reception of RDS stations having the PTY code that you have selected beforehand. Pressing [10] the [7] button causes your selected program type to flash on the display and PTY SEEK to begin ("PTY" [34] flashes).

- PTY seek automatically receives RDS stations having a different PI code with the set PTY code. However, it will return to the previous station if "NO PTY" is displayed.
- If PTY SEEK is unsuccessful, "NO PTY" will be shown on the display for about 2

seconds, after which it will return to the station received before PTY SEEK began.

- Non TP RDS stations may be received during PTY seek even if TA (Traffic Information Standby) is on. In this case an alarm sounds after about 30 seconds to tell you that it is not a TP station.

PTY Alarm

Among the PTY codes there is also one for emergency announcements warning of natural disasters, nuclear reactor accidents, etc. In case of such disasters, RDS stations may output this emergency PTY alarm code. When this unit is ON (not during MW/LW reception), and this PTY code is picked up, ALARM will light on the display, volume will be set to TA interrupt level, and that RDS station will be received. When the RDS station stops putting out the emergency PTY alarm code, the unit will return to the previous source. To return to the previous source during reception of the emergency program, press button [8].

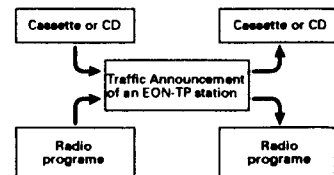
Traffic Information Reception

TP and EON-TP function

When a traffic information station (TP station) is selected, "TP" [31] lights on the display, thus indicating traffic report can be received through this station. The "EON" [32] and "TP" [31] indicator will light on the display when a selected station (this network) is broadcasting EON information which cross-references at least one program service which carries traffic information, thus indicating traffic report can be received through another program service by using the EON function of this unit.

In both cases, by briefly pressing button [8], traffic report waiting status will be entered.

Traffic information reception by EON-TP



Traffic Announcement Volume Adjustment

- The volume level for traffic information broadcasting is temporarily stored in memory.

TP Alarm Function

- In TA mode, about 30 seconds after "TP" [31] disappears from the display, which occurs if the signal from the TP becomes weak, an alarm sounds for 10 seconds to tell you to tune to another TP station.

TA Reception during CD or Cassette Play

- If the radio is already set to the FM band and tuned to a TP or EON-TP station, even when listening to the cassette or the multi-play CD player, when the button [8] is pushed ("TA" [29] is shown on the display), traffic report waiting will begin. When a traffic report begins, the system will switch from cassette or CD to the traffic report.

BSA Function

- While button [8] is on, ("TA" [29] is shown on the display) and AF is off, and you are listening to either the cassette or multi-play CD player, should the TP station become weak, the radio will start BSA (Best TP Station Auto Search) 10 seconds after "TP" [31] disappears from the display. The tuner will automatically tune to the strongest TP station in the area, and will stand by for a traffic bulletin. BSA does not work when the AF function is selected, so press button [6] to turn the AF function off.

TP Alarm Function

- In AF mode, about 30 seconds after "TP" [31] disappears from the display, which occurs if the signal from the TP becomes weak, an alarm sounds for 10 seconds to tell you to tune to another TP station.

Tuning Functions on each RDS mode

Tuning Mode	AF Mode	TA Mode & AF plus TA Mode
Seek Tuning will stop to find,	RDS Stations	TP or EON-TP Station
BSM will select and memorize in presets,	RDS Stations	TP Stations

Non-RDS stations such as those using the Swedish MBS system may be tuned in as RDS stations, but this is due to both systems using the same 57 kHz subcarrier frequency and is not a malfunction of the unit.

Tuning Steps

The tuning step is normally 50 kHz during seek tuning on an FM band. However this tuning step changes to 100 kHz when the set is in AF or TP mode. In some countries it may be desired to set a tuning step of 50 kHz in AF mode by holding down button ① of Bank [11] while turning the ignition key from OFF to ON.

- During manual tuning, the step does not change; it remains fixed at 50 kHz.
- The tuning step will return to 100 kHz if the batteries supply is temporarily disconnected or the clear button is pressed.
- In AF mode, only those stations being broadcast at 100 kHz steps are subject to AF reception (OENELEC STANDARD).

Using the Tape Deck**Parts Identification****Fig. 27**

- [2] Open
- [3] Source Switching
- [4] Front Panel
- [10] Functions
 - ① FLEX (Frequency Level Expander)
 - ② Dolby B and C NR
 - ③ Blank Skip
 - ④ Radio Intercept/CD Intercept
 - ⑤ Scan Playback
 - ⑥ Repeat Playback

Fig. 28

- [14] Tape Direction Switching
- [17] Fast Forward/Rewind and Music Search
- [19] Source Switching

Fig. 30

- [39] Metal
- [40] FLEX (Frequency Level Expander)
- [41] Dolby B and C NR
- [42] Tape Direction Display
- [43] Continuous Playback Time Display
- [44] Repeat Playback
- [45] CD Intercept
- [46] Radio Intercept

About Cassette Tapes

- Do not use tapes longer than C-90-type (90 min.) cassettes. Longer tapes can interfere with tape transport.
- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.
- Storing cassettes in areas directly exposed to sunlight or high temperatures can distort them and subsequently interfere with tape transport.



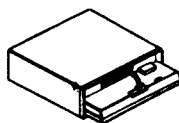
- Store unused tapes in a tape case where there is no danger of them becoming loose or being exposed to dust.

Cleaning the Head

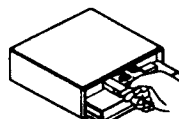
- If the heads become dirty, the sound quality will deteriorate and there will be sound dropouts and other imperfections in performance. In this case, the head must be cleaned.
- When using a cleaning tape, play it once on one side for normal cleaning. Excessive use of the cleaning tape will increase head wear. Be sure to read the cleaning tape instructions before use.

Listening to a Tape

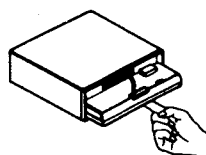
- Press button [2] to open the front panel [4].



- When a cassette tape is inserted into the cassette slot, power will be turned on and the tape will begin playing.

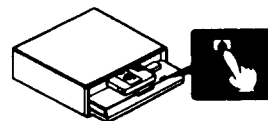


- Close the front panel and adjust the volume and tone.



- To stop playback, press button [3] or [19] to switch the source OFF.

- To eject the cassette, press button [2] to open the front panel [4], then press the Eject button.



- When a cassette is already loaded, tape playback can be turned ON/OFF by pressing button [3] or [19].
- Do not try to eject the cassette immediately after insertion, as it may result in malfunction. Only eject a cassette when it is playing.

Continuous Playback Time

During tape playback, the continuous playback time is shown in [43] in the display.

- The continuous playback time count is halted at the following times.
 - When the power is turned OFF.
 - When you switch to another source.
 - When fast-forwarding/rewinding and while the Music Search function is operating.
- The continuous playback time count starts at "00'00" at the following times.
 - When a tape is inserted.
 - When the tape direction is changed by pressing button [14].
 - When the tape switches from side A to side B, or vice versa.

Tape Direction Switching

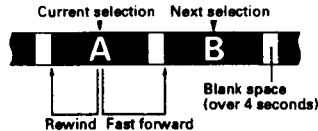
Pressing button [14] switches tape playback from side A to side B, or vice versa. ">>>>>" is displayed in [42] when side A is playing, and "<<<<" when side B is playing.

Fast Forward/Rewind

1. To fast-forward a tape, press the ►► side of button [17]. ("FF" appears in the display.)
To rewind a tape, press the ◄◄ side of button [17]. ("REW" appears in the display.)
2. To cancel fast-forwarding or rewinding, press button [14].

Music Search

1. If you want to listen to an A track again from the beginning, press the ◄◄ side of button [17] twice in succession. ("R-MS" appears in the display.)
If you want to listen to a B track from the start, press the ►► side of button [17] twice in succession. ("F-MS" appears in the display.)
Normal playback is restored by pressing the button three times in succession.



2. To cancel the music search function, press button [14].
- The Music Search function may not work properly with the following kinds of recorded tapes because the gap between tracks cannot be found correctly.
 - A tape with a gap of 4 seconds or less between tracks.
 - A tape containing dialog, etc., with pauses lasting for 4 seconds or longer.
 - A tape with an extremely quiet passage in the music lasting for 4 seconds or longer.

Dolby B and C NR

When playing a tape recorded with Dolby NR, press button ⑤ of bank [10]. Pressing button ⑥ of bank [10] switches alternately between Dolby NR modes as follows: Dolby B NR ("B" [41] lit) → Dolby C NR ("C" [41] lit) → Cancel

- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Metal Tape Display

When a cassette tape is inserted, equalizer (70 μs/120 μs) switching is performed automatically by the auto tape selector feature, and when a metal or chrome tape is inserted, "MTL" [39] lights. Nothing is displayed for a normal tape.

Blank Skip

This function fast-forwards to the next track automatically if there is a long period of silence (12 seconds or more) between tracks.

Pressing button ⑥ of bank [10] switches the blank skip function ON and OFF alternately.

Radio Intercept and CD Intercept

The CD intercept function only works when an optional multi-CD player (such as the CDX-P1210) is used with this unit. Pressing button ⑤ of bank [10] switches the mode as follows:

- Radio Intercept ("RI" [46] lit) → CD Intercept ("CDI" [45] lit) → Cancel
- The radio intercept and CD intercept functions do not work during a Music Search operation.

Radio Intercept

This function allows you to listen to the radio during tape fast-forwarding/rewinding.

1. Press button ⑤ of bank [10] to switch to the radio intercept mode. When fast-forwarding or rewinding is performed, the unit will switch to the radio.
2. To cancel the radio intercept mode, press button ⑤ of bank [10].

CD Intercept

This function allows you to listen to a CD during tape fast-forwarding/rewinding.

1. Press button ⑤ of bank [10] to switch to the CD intercept mode. When fast-forwarding or rewinding is performed, the unit will switch to the CD.
2. To cancel the CD intercept mode, press button ⑤ of bank [10].

Scan Playback

This function plays approximately the first 10 seconds of each track in succession. This is useful for finding a particular track you want to hear.

1. When button ⑤ of bank [10] is pressed, the first 10 seconds of each track is played in succession. ("SCAN" appears in the display.)
 2. When you find the track you want to hear, press button ⑤ of bank [10] again to cancel scan playback and hear the rest of the track.
- The scan playback function may not work properly with the following kinds of recorded tapes because the gap between tracks cannot be found correctly.
 - A tape with a gap of 4 seconds or less between tracks.
 - A tape containing dialog, etc., with pauses lasting for 4 seconds or longer.
 - A tape with an extremely quiet passage in the music lasting for 4 seconds or longer.

Repeat

The repeat function lets you hear the same track over again.

1. Pressing button ⑥ of bank [10] allows you to repeat the track being played. ("RPT" [44] lights.)
 2. The repeat function can be canceled by pressing button ⑥ of bank [10] again, or pressing button [14].
- The repeat function may not work properly with the following kinds of recorded tapes because the gap between tracks cannot be found correctly.
 - A tape with a gap of 4 seconds or less between tracks.
 - A tape containing dialog, etc., with pauses lasting for 4 seconds or longer.
 - A tape with an extremely quiet passage in the music lasting for 4 seconds or longer.

FLEX (Frequency Level Expander)

If the high-frequency performance is poor when playing back an old or poorly recorded cassette, you can improve it by pressing button ⑦ in Bank [10]. ("1/f" [40] appears.)

- This function may have little effect on a cassette offering good sound quality, for instance, one recorded from compact disc.

Playing a CD

Precautions When Using the Multi-CD Control

- This unit can control multi-CD players when it is used with multi-CD player (such as the CDX-P1210).
- If the IP-BUS extension adapter is used, up to 4 multi-CD players can be connected. When two or more CD players are connected, their priorities must be specified for the Multi-CD players. See the Multi-CD players instructions and set the address switches correctly.

Parts Identification

Fig. 27

- [3] Source Switching
[10], [11] Disc Number Search
[10] Functions
- ⑦ Display Switching/Disc Title
 - ⑧ Pause/Random Playback
 - ⑨ Title List/ITS Clear
 - ⑩ ITS/ITS Playback
 - ⑪ Scan Playback/Digital Compression
 - ⑫ Playback Mode Switching
 - ⑬ Track Number Search—Fast Forward, Rewind Switching
- [12] Function Switching

Fig. 28

- [14] Multi-CD Player Switching
[16] Disc Number Search
[17] Track Number Search—Fast Forward, Rewind
[20] Source Switching

Fig. 31

- [47] Multi-CD Player Number
[48] Disc Number
[49] Track Number
[50] Playback Time
[51] Function
[52] COMP
[53] One Track Repeat
[54] Disc Repeat
[55] Magazine CD Repeat
[56] Random
[57] Fast Forward/Rewind
[58] DBE

Using the Multi-CD Player

1. Press button [3] or [20] to switch the source to the multi-CD player. (The multi-CD player number [47], disc number [48], track number [49], and playback time [50] are displayed.)
- When you turn the power on or change the disc to be played, the multi-CD player may perform a preparatory operation (verifying there is a disc, reading disc information, etc.). "READY" is displayed during this time.
- If the multi-CD player is unable to operate normally, an error message will appear on the display (e.g. "ERROR-90"). If this happens, check the meaning of the error message in the multi-CD player Instruction Manual.
2. To stop disc playback, press button [3] or [20] to switch the source OFF.
- When CD playback is started again, it will begin near the track at which playback was stopped.

Switching functions

- Button [10] has two functions. It switches ITS, random playback, etc. ON and OFF and it also serves as the disc number search. Press button [12] to switch the function as desired.
- If a 6-Disc Multi-play CD-player is connected, switching between functions ON and OFF cannot be performed even if button [12] is pressed.

Functions ON ([51] lit)

When using buttons in bank [10] with a function such as ITS or random playback, you should first turn functions ON.

Functions OFF ([51] off)

When using buttons in bank [10] to search the disc number, you should first turn functions OFF.

Switching the multi-CD player

A maximum of 4 multi-CD players can be connected to this unit. Press button [14] to choose the desired CD player. The number of the CD player is indicated in [47] on the display.

Disc number search

Select the disc using buttons [10] and [11]. The disc number is indicated in [48] on the display.

- Leave the function OFF when selecting a disc using button [10].
- When using the remote controller, the disc, set in the multi-CD player is switched each time the ▲ or ▼ side of button [16] is pressed.

- It takes a few seconds for CD playback to begin after a button is pressed. This is the time taken to change the disc.

Note:

Leave the function ON when using button [10] for the following operations.

Track Number Search

The track number search function lets you select a particular track on a disc. Check that "MANU" does not light in display [57]. If it does, turn it out by pressing button ② of bank [10] for 2 seconds or more. The track number [49] is incremented by pressing the ►► side of button [17], and decremented by pressing the ◄◄ side. Holding down the button will increment/decrement the number continuously.

Fast Forward/Rewind

1. Press button ② of bank [10] for 2 seconds or more. "MANU" [57] will light.
 2. Press the ►► side of button [17] to fast-forward, or the ◄◄ side to rewind.
- Playback can be heard while fast-forwarding or rewinding.

Pausing

The disc playback can be stopped temporarily by pressing ③ of button [10]. (The "PAUSE" will be displayed.) To cancel the pause, press the button again.

Repeat

You can select one of the play modes (repeat modes) listed below.

Play mode (repeat mode)	Operation
One-Track Repeat	Play the current track repeatedly. • When you perform track number search or fast forward or rewind, the mode changes to disc repeat mode. • Switching the multi-CD player being played or the disc switches to magazine repeat mode.
Disc Repeat	Play the same disc repeatedly. • Switching the multi-CD player being played or the disc switches to magazine repeat mode.
Magazine Repeat	Play all discs loaded in the magazine in the multi-CD player repeatedly. All discs in the magazine are played repeatedly from the first disc.
ALL Repeat*	The mode changes to this mode when 2 or more multi-play CD players are connected. Multi-CD players 1 to 4 are played.

* When 2 or more multi-CD players are connected.

Each press of button ② in bank [10] causes the mode to change as follows:
One-Track Repeat ("RPT" [53] appears.) → Disc Repeat ("DISC" [54] appears.) → Magazine Repeat ("M-CD" [55] appears.) → ALL Repeat ([53] [54] [55] will disappear.)

Random Play

The microcomputer of the CD player selects plays tracks on discs in random order. Random play is performed according to the current play mode (repeat mode) as follows:

Play mode (repeat mode)	Tracks to be played at random
One-Track Repeat	All tracks on the disc being played. • The play mode changes to disc repeat mode.
Disc Repeat	All tracks on the disc being played.
Magazine Repeat	All tracks on the discs in the magazine being played.
ALL Repeat*	All tracks on all discs in multi-CD players 1 to 4.

* When 2 or more multi-CD players are connected.

1. Select the desired random play mode (repeat mode).
2. Hold down button ⑧ in bank [10] for more than 2 seconds. ("RDM" appears on the display [56].) To cancel random play, hold down button ⑧ in bank [10] for more than 2 seconds again. ("RDM" disappears.)
- Since selections are played in random order, the same selection may be played twice in succession.

Using Scan Play

The first parts of each track are played in succession for about 10 seconds. This function is useful to search for the track or disc you want to listen to. Scan is performed according to the current play mode (repeat mode) as follows:

Play mode (repeat mode)	Tracks to be scanned and played
One-Track Repeat	All tracks on the disc being played. • The play mode changes to disc repeat mode.
Disc Repeat	All tracks on the disc being played.
Magazine Repeat	The first tracks of all the discs in the magazine being played.
ALL Repeat*	First tracks of all discs loaded in multi-CD players 1 to 4.

* When 2 or more multi-CD players are connected.


1. Select the desired scan play mode (repeat mode).
2. Press button ⑨ in bank [10]. ("SCAN" appears on the display.) The first parts of all tracks are played in succession for about 10 seconds.
3. When you hear the track you want, press button ⑨ in bank [10] again to cancel Scan. ("SCAN" disappears.) The track (disc) being played is when played to the end.
- The previous function automatically resumes when a piece of music with which Scan began returns.

ITS (Instant Track Selection)

This function lets you program and play the tracks you want. You can listen to just your favorite tracks.

- The ADPS function* of the multi-CD player lets you program up to 100 discs. (Up to 100 discs can be programmed including disc title inputs.)
- * ADPS: Automatic Disc Program Selection
- Up to 99 tracks can be programmed for a single disc.
- From the 100th disc, the data for a new disc will overwrite the data of the oldest disc, that has not been played back (information has not been updated).
- Tracks are programmed for each disc. Programmed tracks are not erased after the disc is changed.

Programming



1. Play the track you want to program.
2. Press button  in bank [10] to program the track. ("ITS" appears on the display for 3 seconds.)
- Program tracks while ITS play is not in progress. It is possible during scan play or random play.

ITS Play

Tracks are played according to ITS play mode (repeat mode) as follows:

Play mode (repeat mode)	Tracks to be played by ITS
One-Track Repeat	Programmed tracks on the disc being played. • The play mode changes to disc repeat mode.
Disc Repeat	Programmed tracks on the disc being played.
Magazine Repeat	Programmed tracks on the discs in the magazine being played. • If the disc being played contains no programmed tracks, the next disc containing programmed tracks is played.
ALL Repeat*	Programmed tracks on all discs in all magazines in multi-CD players 1 to 4. • If the disc (multi-CD) being played contains no programmed tracks, the next disc (multi-CD) containing programmed tracks is played.


* When 2 or more multi-CD players are connected.

1. Select the desired ITS play mode (repeat mode).
2. Hold down button  in bank [10] for more than 2 seconds. ("ITS.P" appears on the display.) To cancel ITS play, hold down button  in bank [10] for more than 2 seconds again. ("ITS.P" disappears.)
- If you try to play a track that is not programmed within the play range of the selected repeat mode by ITS, "EMPTY" will appear on the display for about 3 seconds, indicating that ITS play is not possible.
- You can perform scan play or random play during ITS play. In this case, scan play or random play applies to all the tracks stored in memory. (If the play mode is the magazine repeat mode or all repeat mode, scan play applies to all the tracks of the discs in the magazine stored in memory.)
- During ITS play, multi-CD players containing discs with programmed tracks are switched, and disc and track number search is performed on programmed tracks. So, you cannot switch to any tracks or discs that are not stored in memory.
- When you turn the power on or change the disc to be played, the multi-CD player may perform a preparatory operation (verifying there is a disc, reading disc information, etc.). "READY" is displayed during this time.


Erasing the ITS Program

You can erase one or all selections of the program for the disc being played by ITS.

To erase a single selection:

1. Start ITS play.
2. Play the track you wish to erase by using disc number search or track number search.
3. Hold down button  in bank [10] for more than 2 seconds.
- If programmed tracks are completely erased, "EMPTY" appears on the display and the ITS play will be canceled.

To erase the disc program:

1. Start normal play.
2. Play the disc you wish to erase by using disc number search.
3. Hold down button  in bank [10] for more than 2 seconds to erase the program. ("CLEAR" appears on the display for about 3 seconds.)

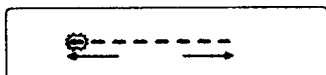
Disc Title Input

You can enter a title for the disc in the multi-CD player. The title stored for the disc can be displayed.

- The ADPS function* of the multi-CD player lets you enter titles for up to 100 discs. (Up to 100 discs, including ITS, can be programmed.)
- * ADPS: Automatic Disc Program Selection
- A disc title can consist of up to 8 characters for a single disc.
- From the 100th disc, the data for a new disc will overwrite the data of the oldest disc, that has not been played back (information has not been updated).
- One title is stored for each disc. The title stored for a disc is not erased after the disc is changed.

Entering Titles

1. Select the disc for which you want to enter a title.
2. Hold down button ⑦ in bank [10] for more than 2 seconds to select title input mode.
3. Press the ◀ or ▶ side of button [17] to select the input position. The input position moves continuously when you hold down either side of the button.



4. Select characters using the ▲ or ▼ side of button [16]. When you hold down either side of the button, the character changes continuously. Each press of the ▲ side changes the character from "A → B → C...", while each press of the ▼ side changes the character from "C → B → A". To enter a space, select the space sign ().
5. Enter all characters by repeating steps 3 and 4.
6. Press button ⑦ in bank [10] to store them in memory.
The title will appear on the display.

Disc Title List

You can list all discs loaded in the magazine being played. This function is convenient for checking discs in the magazine being played. Each press of button ⑨ in bank [10] displays the titles of the discs in magazine being played in ascending order of disc number. The disc title list mode is displayed for about 8 seconds, then the normal operation display returns.

- Nothing is displayed for discs having no titles.
- Trays with no discs are skipped.

Select the disc to be played from the disc list display

1. Press button ⑨ in bank [10] to display the disc title.
2. When the title of the disc you want to listen to is displayed, press button ⑦ in bank [10]. That disc is played.

Display Switching

Pressing button ⑦ of bank [10] switches between the elapsed playback time display and the disc title display alternately. Press button [14] during title indication to make the track display and playback time display appear for about 8 seconds.

- Nothing is displayed for discs having no titles.

CD sound quality adjustment function

If you connect a Multi-CD player with COMP (Compression) and D.B.E. (Dynamic Bass Emphasis) functions to this unit, you can use these functions with this unit. (If you connect a Multi-CD player that does not feature these functions, even if you try to switch to these functions, "NO COMP" is displayed, indicating that switching is not possible.)

COMP (Compression) function

This function suppresses loud sounds while boosting quiet sounds to reduce the difference between the two. Use this function if there is distortion when you raise the volume. When the COMP function is ON, "COMP" [52] lights in the display.

D.B.E. (Dynamic Bass Emphasis) function

When listening in a car, bass sound may be insufficient. This function boosts bass. When the D.B.E. function is ON, "DBE" [58] lights in the display.

COMP and D.B.E. switching

You can switch between two COMP and D.B.E. levels.

Level switching of both functions at the same time is not possible.

1. Press button ⑩ in Bank [10] for more than 2 seconds to select the switching mode.
 2. Each time you press button ⑩ in Bank [10], the mode changes as follows:
COMP OFF → COMP 1 → COMP 2 → COMP OFF → DBE 1 → DBE 2 → COMP OFF
- With both COMP and D.B.E., the second mode is more effective.

Using the Clock**Parts Identification****Fig. 27**

[9] Clock

- [11] ① Hour adjustment
② Minute adjustment
③ Time signal adjustment

Displaying the Time

Pressing button [9] will turn the display to time indication. Pressing button [9] again will cancel the time indication.

- The clock display can be used only when the main unit is in operation.
- When the clock display is ON, pressing other buttons will release the clock display. The display will be restored approximately 25 seconds after the button operation has been completed.

Adjusting the Time**Adjusting Hours**

While holding down button [9], press button ① in bank [11], to adjust the hour setting of the clock. Each press of button ①, advances the hour setting by one hour, and holding it down advances the setting at high speed.

Adjusting the Minutes

While holding down button [9], press button ② in Bank [11], to adjust the minute setting of the clock. Each press button ②, advances the minute setting by one minute, and holding it down advances the setting at high speed.

- After the minute is adjusted, the clock will start from 0 second when button [9] is released.

Adjust the clock with the "Immediate clock adjustment"

Hold down button [9] and press button ③ in Bank [11]. The time becomes "00:00".

- If the "minute" indication is 00 to 29, it is discarded, and the clock starts. (Example: If the time is "10:18", it becomes "10:00".)
- If the "minute" indication is 30 to 59, it is rounded up and the clock starts. (Example: If the time is "10:36", it becomes "11:00".)

Learn Function**Parts Identification****Fig. 27**

[5] Learn Mode

Fig. 28

[13] Learn

One of the buttons on this unit can be memorized in button [13] on the remote controller.

1. Press button [5] for 2 seconds or more to set the learn mode. ("LEARN" appears on the display.)
 2. Press the button on the unit which you want to memorize in the remote controller.
- Button [2] cannot be memorized.

Regarding the Cellular Telephone Muting

When a call is received or placed with a cellular telephone, the cellular telephone muting will turn ON. When the phone is hung up, the muting will be canceled.

- No sound is produced.
- "CALL" will be displayed.
- The audio operation can not be done except volume control.

Service Manual

ORDER NO.
CRT1640

CASSETTE MECHANISM ASSY

CX-631

- This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for model under repair.

Model	Service Manual	Cassette Mechanism Unit	Deck Unit
KEH-P990/UC	CRT1639	EXK3170	CWM3954
KEX-P820/ES	CRT1656		
KEX-P820RDS/EW	CRT1638		
KEH-P9200RDS/EW, X1BEW	CRT1638	EXK3130	CWM3953
KEH-P9250/ES	CRT1656		
KEH-P8200/UC	CRT1639		
KEH-P8200RDS/EW, X1BEW	CRT1638		
KEH-P8250/ES	CRT1656		
KEH-P790/UC	CRT1654	EXK3110	CWM3952
KEH-P7250/ES	CRT1652		
KEH-P7200RDS/EW	CRT1653		
KEH-P7200/UC	CRT1654		
KEH-P7100RDS/EW	CRT1653		
KEH-P6200/UC	CRT1652	EXK3105	CWM4212
KEH-P6200RDS/EW	CRT1653		
KEH-P6100RDS/EW	CRT1653	EXK3100	CWM3951
KEH-P590/UC	CRT1652		
KEH-P5250/ES	CRT1652		
KEH-P5200/UC	CRT1652		
KEH-P25RDS/EW	CRT1653		
KEH-P15RDS/EW	CRT1653		

CONTENTS

1. MECHANISM DESCRIPTION AND GREASING2
2. DISASSEMBLY11
3. ADJUSTMENT.....11

PIONEER ELECTRONIC CORPORATION

4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada

PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY.LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL:[03]580-9911

© **PIONEER ELECTRONIC CORPORATION 1994**

K-FFD.DEC. 1994 Printed in Japan

1. MECHANISM DESCRIPTION AND GREASING

1.1 DRIVE OPERATION

Inserting the cassette tape → Draw in → Put it down → Release → Forward play → REW → FF → Reverse play
 Eject → Draw out → Lift

All motive force(except the force for running a tape) is supplied by sub-motor.

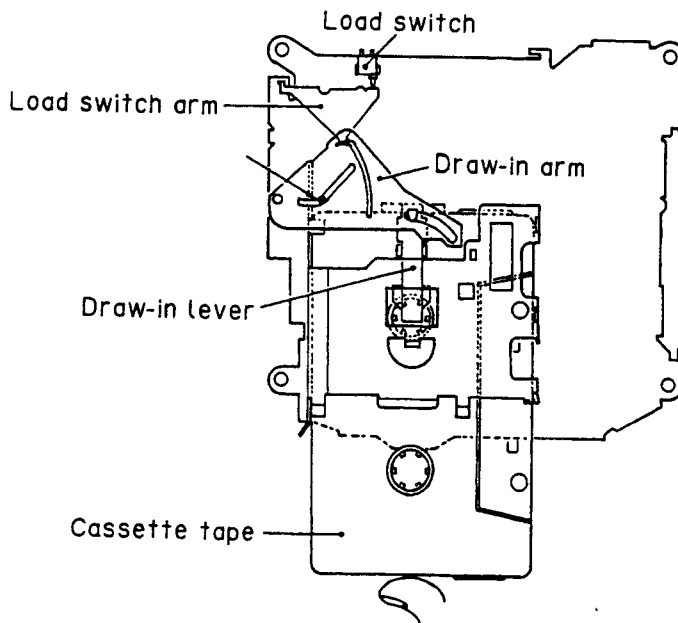
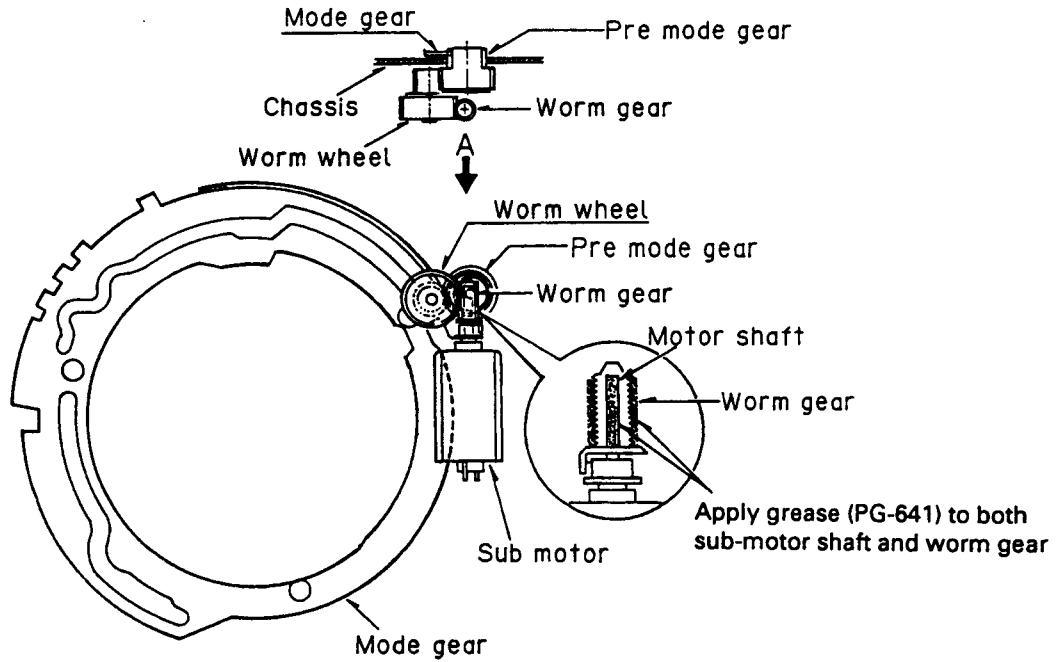


Fig.1

1.2 LOADING AND EJECT OPERATIONS

● Loading the Cassette Tape

1. Push the cassette tape by finger.
2. The draw-in lever is pushed by the cassette tape. And the load switch is turned on by way of the draw-in arm and of the load switch arm.
3. The sub-motor starts running.
4. The mode gear turns in direction (1).
5. The put-down driving lever moves in direction (2).
6. Move the put-down lever operation shaft in direction (3) and turn the draw-in arm in direction (4).
7. The cassette tape is loaded.

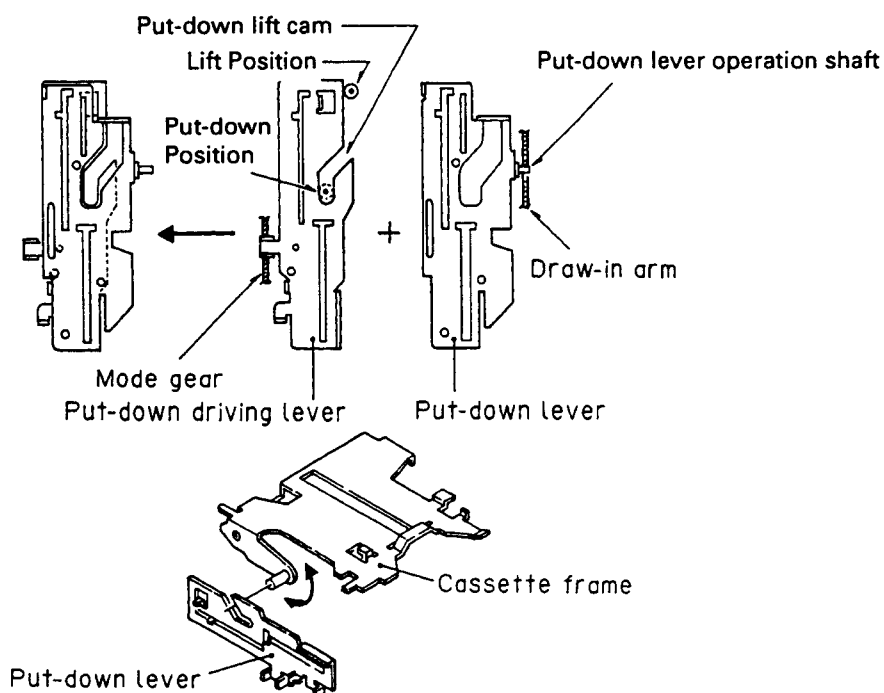
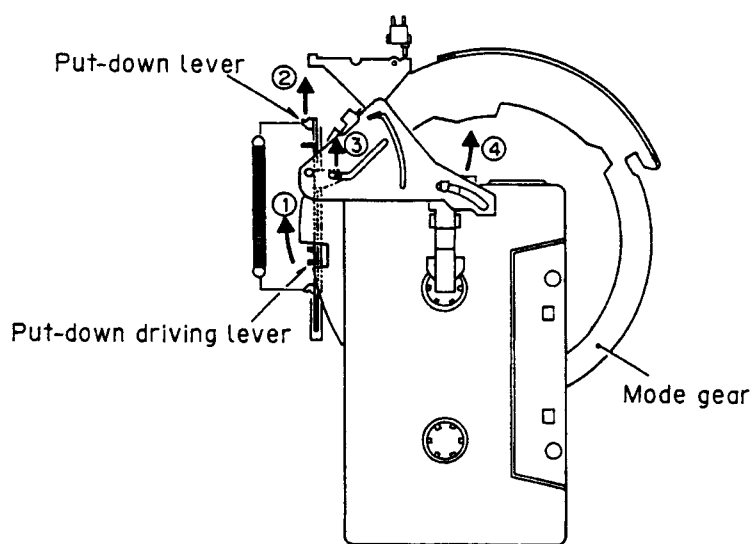
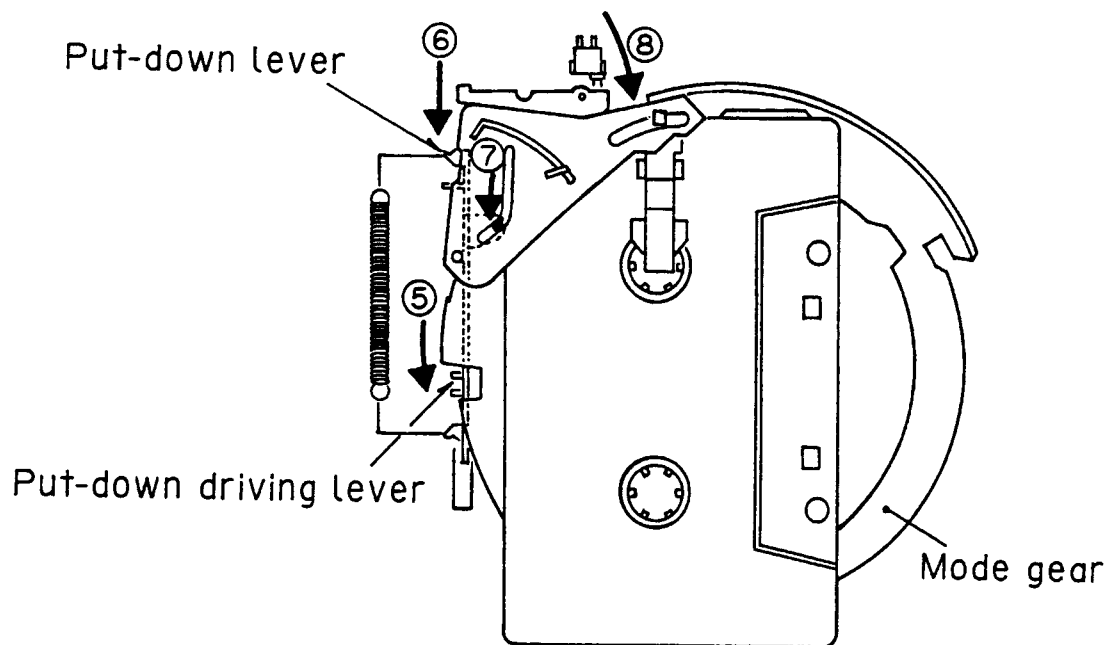


Fig.2

● Ejecting the Cassette Tape

- 1.The sub-motor starts running in the direction opposite to that in loading.
- 2.The mode gear turns in direction (5).
- 3.The put-down driving lever moves in direction (6).
- 4.Move the put-down lever operation shaft in direction (7) and turn the draw-in arm in direction (8).
- 5.Pull the load switch arm toward you and turn off the load switch.
- 6.The sub-motor stops.
- 7.The cassette tape is ejected.

**Fig.3**

1.3 MODE CHANGEOVER

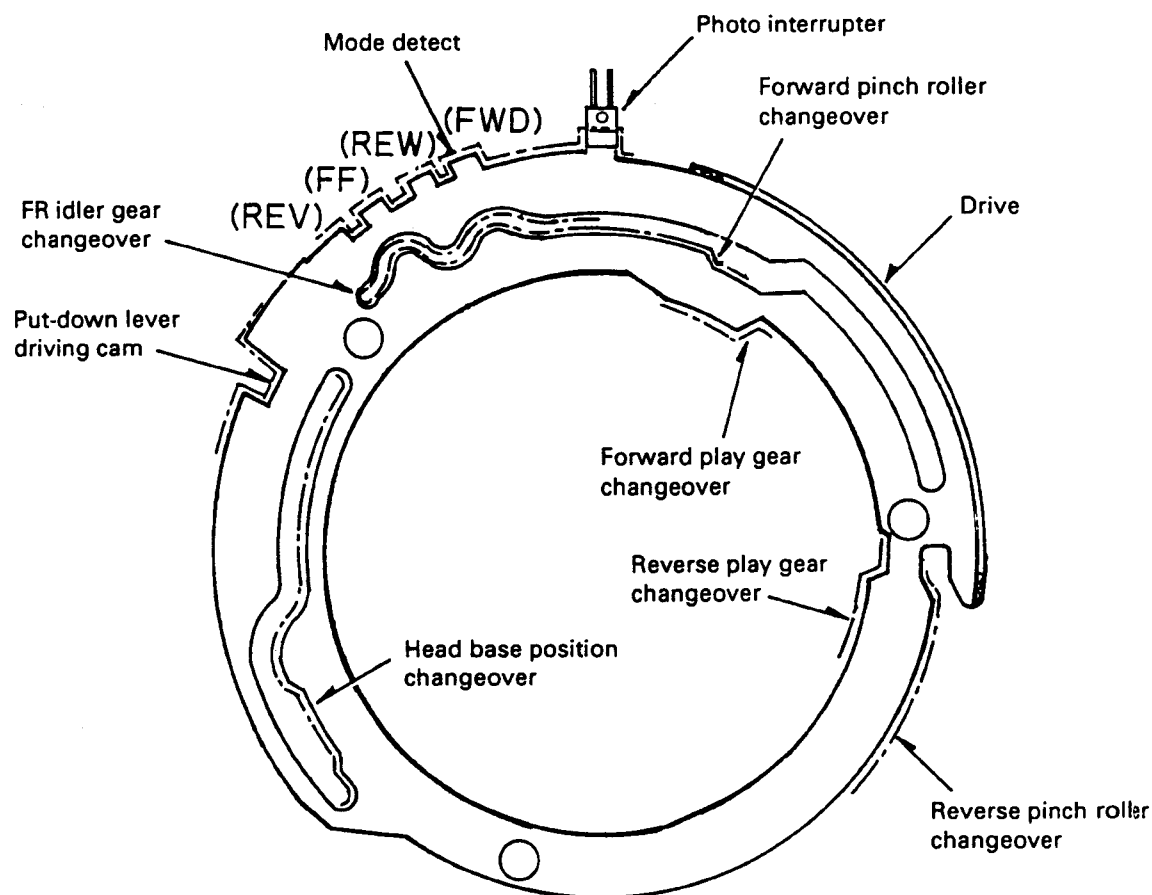


Fig.4

The mode gear is rotated by rotation of the pre mode gear which is driven by the sub-motor. The modes are in series in the order of "release" ↔ "forward play" ↔ "REW" ↔ "FF" ↔ "reverse play". The rotation of the mode gear makes changeover of the head position, press contact between the pinch rollers (forward, reverse), the rewinding reel rotation, etc.

The actions to be performed in the separate mode are shown in Fig.5 through 9.

● Release

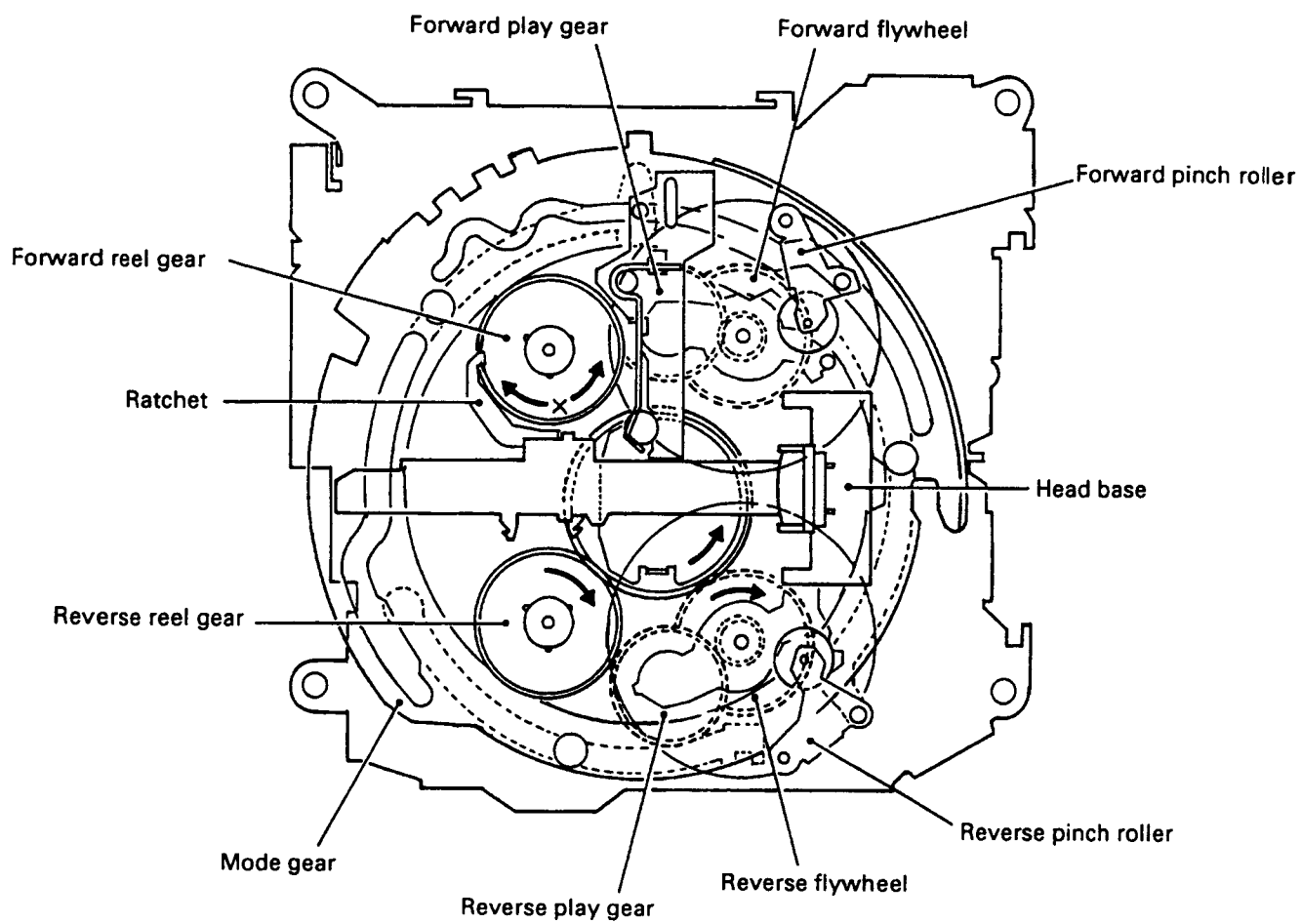


Fig.5

● Forward Play

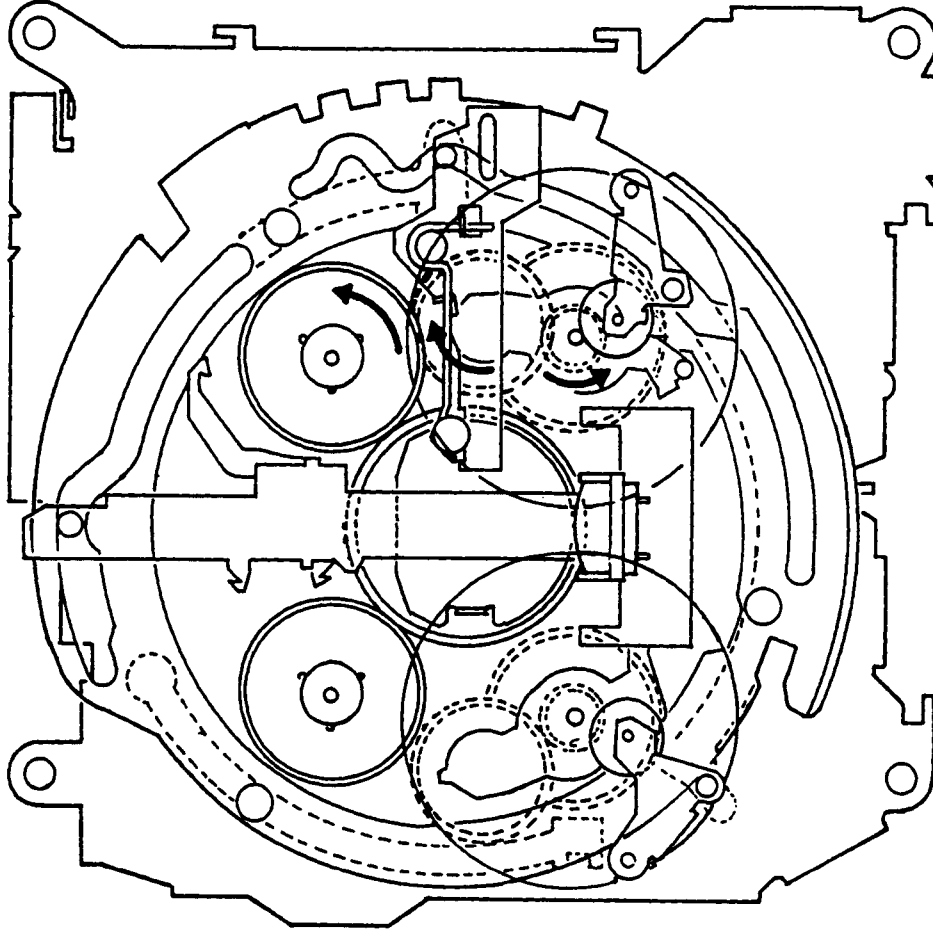


Fig.6

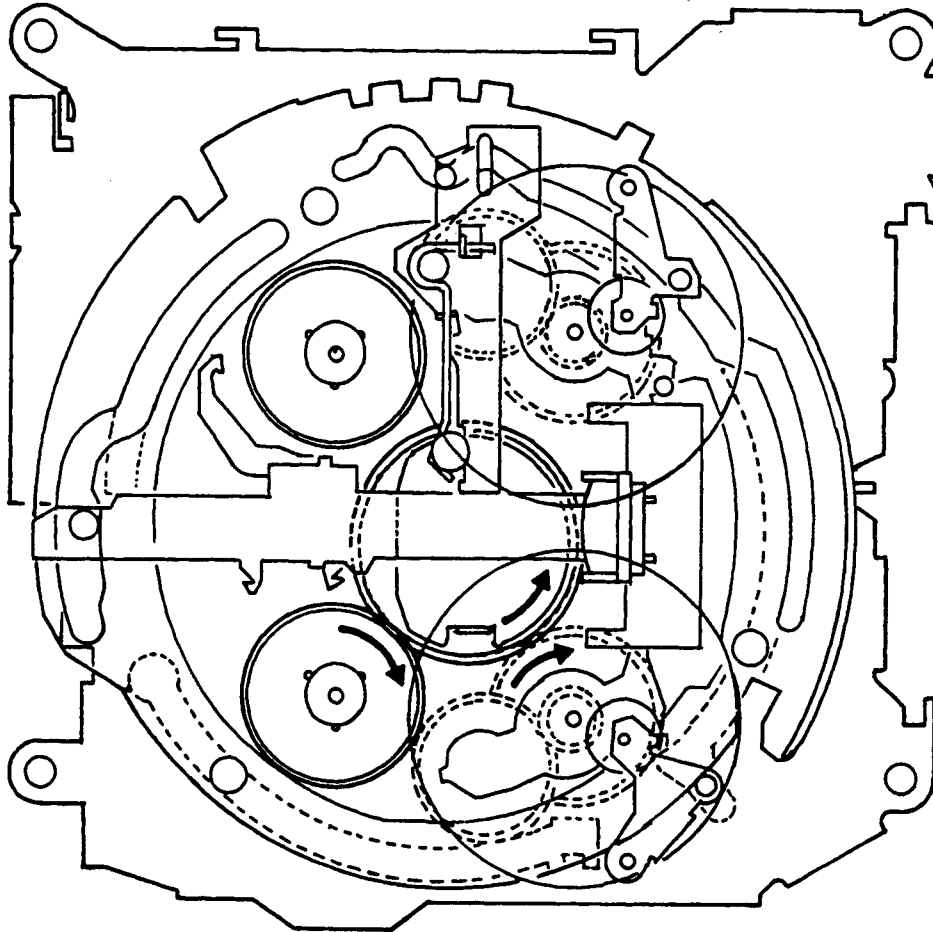


Fig7

● FF

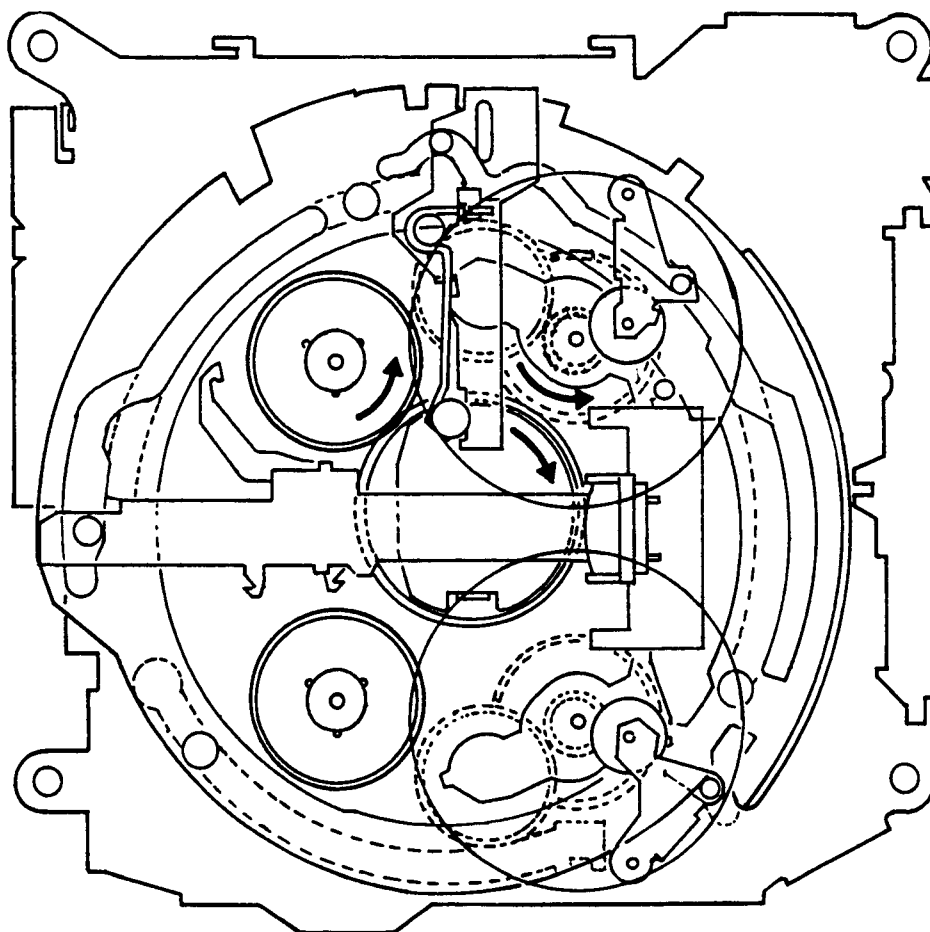


Fig.8

● Reverse Play

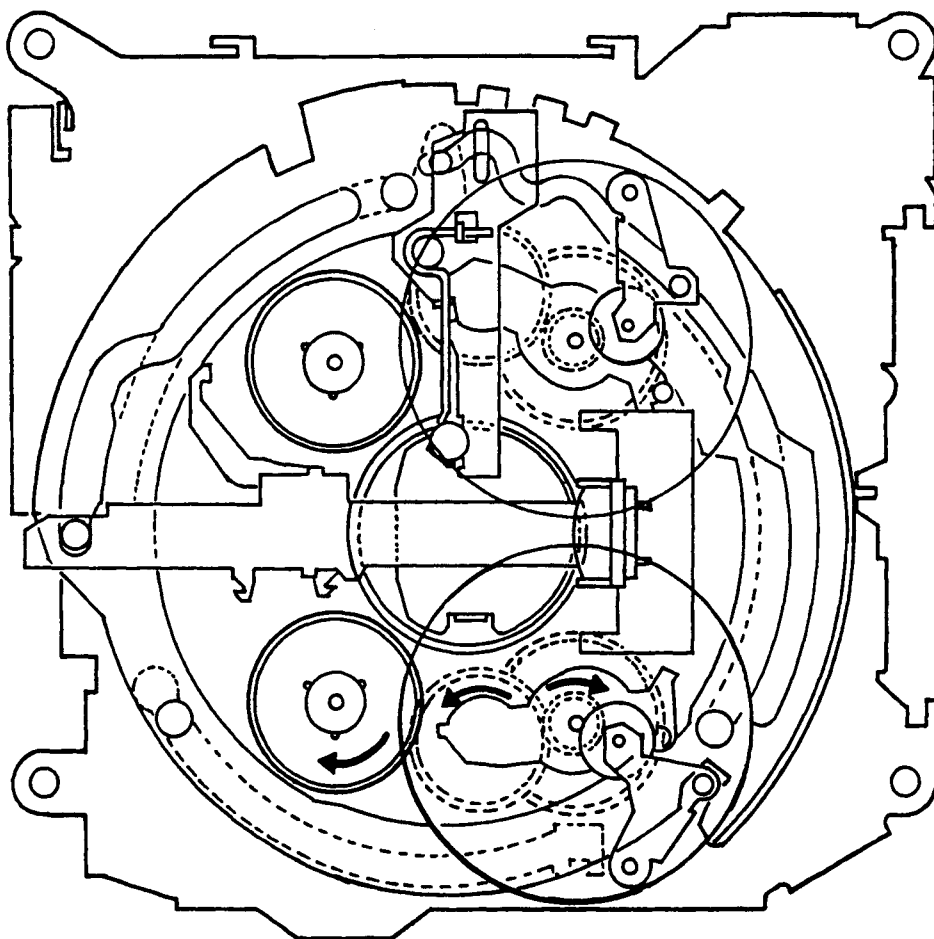


Fig. 9

2. DISASSEMBLY

● How to Remove the Cassette Holder

1. Remove the washer and two arms.
2. Remove the two screws, and then remove the guide assembly.
3. Straighten the frame unit pawl, and remove both holder and frame unit.

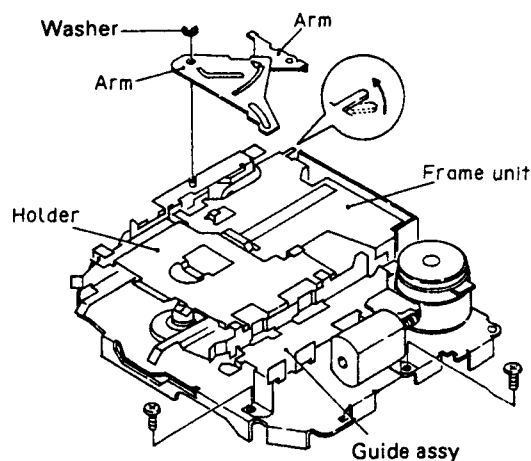


Fig.10

● How to Remove the Reel Unit

1. Remove the washer.
2. Push the arm in the arrow-marked direction and remove the reel assembly.

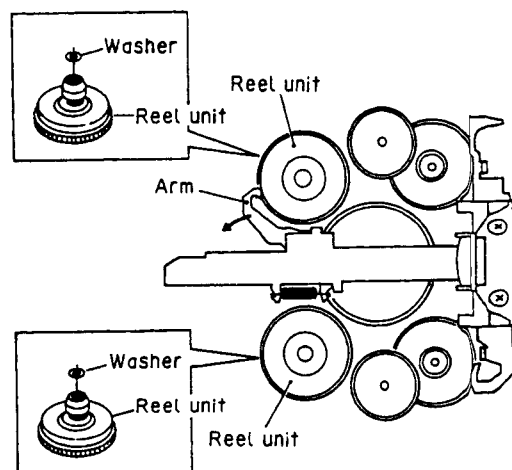


Fig.11

3. ADJUSTMENT

3.1 TAPE SPEED ADJUSTMENT

● To Adjust

Reproduce NCT-111 (3kHz, -10dB). Adjust the semi-fixed resistor so that frequency counter shows 3015Hz(+75Hz, -45Hz).

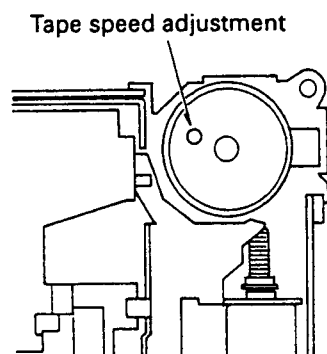


Fig.12

3.2 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism .</p>	<p>■ Tape speed deviation: 3,000Hz +90Hz, -30Hz (4.76cm/s +3%, -1%)</p> <p>Using an NCT-111, measure the speed at the start and end of winding and take the maximum values. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5-6 seconds.</p>	<p>■ Wow and flutter: Less than 0.15%(WRMS)</p> <p>Using the NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70 % of the minimum and maximum values. Measuring time shall be 5-6 seconds.</p>
<p>■ Fast forward and rewinding time: 100-120 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque: 45-70 g-cm</p> <p>Using a cassette type torque meter (100 g-cm), measure the minimum value while in the play mode. Measuring time shall be 2.5-6 seconds.</p>	<p>■ F.F. torque: More than 50 g-cm</p> <p>Using a cassette type torque meter (130 g-cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque: More than 50 g-cm</p> <p>Using a cassette type torque meter (130 g-cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque: 1.5-5.5 g-cm</p> <p>After setting the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	